

## DOCUMENT RESUME

ED 354 809

HE 026 228

AUTHOR Stowe, Peter  
TITLE Estimates of 1985-86 Bachelor's Degree Recipients' Course-Taking Behavior. Recent College Graduates Study. E.D. TABS.  
INSTITUTION National Center for Education Statistics (ED), Washington, DC.  
REPORT NO NCES-93-078  
PUB DATE Feb 93  
NOTE 96p.  
PUB TYPE Statistical Data (110) -- Reports - Research/Technical (143)  
EDRS PRICE MF01/PC04 Plus Postage.  
DESCRIPTORS Allied Health Occupations Education; \*Bachelors Degrees; Business Education; \*College Graduates; Computer Science Education; \*Course Selection (Students); Education Majors; Engineering Education; Grade Point Average; Higher Education; Liberal Arts; Majors (Students); Mathematics Education; Medical Education; National Surveys; Public Affairs Education; Science Education; \*Undergraduate Study

## ABSTRACT

This publication presents estimates of 1985-86 bachelor's degree recipients' course-taking behavior in 10 major tables. The data are based on transcripts collected as part of the 1987 Recent College Graduates Study which collected data on almost a million college graduates. The data presented here discuss nine major fields of study: business and management, education, engineering, health care, public affairs and social services, math/computer science/physical science, social science, humanities, and psychology. Highlights of the findings include the following: the average number of courses taken by bachelor's degree recipients ranged from 48 courses for social science majors to 58 courses for engineering majors; the average grade point average of graduates in the 10 major fields of study ranged from 2.6 to 2.8 and did not differ substantially from field to field; the percentage of graduates who took one or more foreign language courses varied from 21 percent for engineering majors to 66 percent for social science majors; and more graduates majored in business and management than in any of the other major fields of study. Also included are a section on study methodology and appendixes containing a standard error table, a classification of major fields, and occupational codes. (JB)

\*\*\*\*\*  
\* Reproductions supplied by EDRS are the best that can be made \*  
\* from the original document. \*  
\*\*\*\*\*

---

# NATIONAL CENTER FOR EDUCATION STATISTICS

---

E.D. TABS

February 1993

---

Recent College Graduates Study

## Estimates of 1985-86 Bachelor's Degree Recipients' Course-Taking Behavior

U.S. DEPARTMENT OF EDUCATION  
Office of Educational Research and Improvement  
EDUCATIONAL RESOURCES INFORMATION  
CENTER (ERIC)

- ☒ This document has been reproduced as received from the person or organization originating it
- ☐ Minor changes have been made to improve reproduction quality

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

---

U.S. Department of Education  
Office of Educational Research and Improvement

NCES 93-078

2  
BEST COPY AVAILABLE

---

# **NATIONAL CENTER FOR EDUCATION STATISTICS**

---

**E.D. TABS**

**February 1993**

---

**Recent College Graduates Study**

## **Estimates of 1985–86 Bachelor's Degree Recipients' Course-Taking Behavior**

Peter Stowe  
Postsecondary Education Statistics Division

---

**U.S. Department of Education  
Office of Educational Research and Improvement**

**NCES 93-078**

**U.S. Department of Education**

Richard W. Riley

*Secretary*

**Office of Educational Research and Improvement**

Emerson J. Elliott

*Acting Assistant Secretary*

**National Center for Education Statistics**

Emerson J. Elliott

*Commissioner*

**National Center for Education Statistics**

"The purpose of the Center shall be to collect, analyze, and disseminate statistics and other data related to education in the United States and in other nations."—Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e-1).

February 1993

**Contact:**

Peter Stowe

(202) 219-1363

This book is in the public domain and may be reprinted in whole or in part without further permission.

All government publications are available from approximately 1,300 Depository Libraries spread throughout every state and congressional district. Copies of this publication will be available for use at your nearest Depository Library.

Additional copies of this publication will be available **while stocks last** from the OERI Education Information Branch, U.S. Department of Education, 555 New Jersey Avenue NW, Washington, DC 20208-5641.

## Highlights

### Course-taking behavior among majors:

- o The average number of courses taken by bachelor's degree recipients ranged from 48 courses,<sup>1</sup> for social science majors, who earned 140 credit<sup>2</sup> hours on average, to 58 courses for engineering majors, who earned 168 credit hours on average.
- o The average grade point average of graduates in the 10 major fields of study considered in this E.D. TAB did not differ substantially. The range was from 2.6 to 2.8.

### Course-taking behavior in selected program areas:

- o Among the grade point averages (GPAs) associated with each of the 18 program areas presented in this E.D. TAB, the GPA for the education program area was among the highest, 3.1. This suggests that graduates received on average higher grades from courses taken in the education program area than in many other program areas.
- o The percentage of graduates who took one or more foreign language courses varied from 21 percent for engineering majors to 66 percent for social science majors. Approximately one-third of business, education, and health care majors took one or more foreign language courses. Among biology, social science, humanities, and psychology majors, more than half took one or more foreign language courses.
- o At least three-fourths of the graduates in each of the selected majors, except humanities, took one or more courses in **mathematics**. The average number of math courses taken by the graduates in each of the majors was at least two. The average number of math credits earned varied from a low of 8 credits for humanities, health care, and public affairs majors to a high of 24 and 27 credits for engineering and math/computer science/physical science majors, respectively.
- o For each of the selected majors at least 60 percent of the graduates took at least one course in the **physical sciences**. The average number of courses taken varied from 2 courses for business and public affairs and social services majors to at least 8 for biological and life science, engineering, and math/computer science/physical science majors.

#### Course-taking behavior of graduates in selected majors:

- o More graduates majored in **business and management** than in any of the other major fields of study.
- o **Business** majors generally took more computer science and math courses and the same number or less of foreign language courses than majors in education, health care, social sciences, humanities, or psychology.
- o **Education** majors took an average of 17 courses in education resulting in about 50 credits on average in education. Each of the other majors took less than 4 education courses and earned at most 10 credits on average in education courses. Education majors had an average GPA of 2.9 in their education courses. Graduates in the other nine majors earned at least as high a GPA for their coursework in education.
- o Compared with all graduates, **education** majors had among the lowest GPAs in the following program areas: business and management, foreign language, history, psychology, public affairs and social services, social science, and vocational/technical.
- o Seven of every 10 education majors graduated without taking a computer science course, 2 out of every 3 had not taken a foreign language course, 1 of every 4 never had a physical science course, and 1 of every 10 never had a mathematics course.
- o **Engineering** majors earned an average of 68 credit hours in engineering courses. All other majors averaged less than 60 credit hours in courses in their major field and generally earned fewer credits than engineers in mathematics and the physical sciences. In the physical sciences program area, however, math/computer science/ physical science and biology/life science majors earned about the same number of credits as engineering majors. The proportion of engineers with at least one course in fine and applied arts, foreign languages, history, life sciences, and psychology was among the lowest of the majors.

#### Course-taking behavior and occupational choices of graduates:

- o Between 4 and 18 percent of graduates in education, health care, math/computer science/physical science, social science, and humanities held a business or management position 1 year after graduation. A larger proportion of education and health care majors who entered the business field took one or more courses in business than those who

entered teaching, in the case of education majors or health care, in the case of health care majors. For example, 24 percent of education majors who obtained a position in education took one or more courses in business while 45 percent of education majors who entered business took at least one course in business.

- o Between 5 and 13 percent of majors in math/computer science/physical science, social science and humanities entered the teaching profession after graduation. For each of these three majors those who entered teaching took more courses and earned more credits on average in education than those who entered their major's principal occupation (which was computer science for the math/computer science/physical science majors, business and management for the social science majors, and administrative services (clerical) for the humanities majors).
- o Fifty-seven percent of engineering majors and 6 percent of math/computer science/physical science majors were working as engineers 1 year after graduation. A larger proportion of math/computer science/physical science majors who became engineers took at least one course in engineering than majors in these fields who became computer scientists.
- o Among math/computer science/physical science majors one-third held a computer science position 1 year after graduation while 4 percent of business majors held such a position. Business majors who entered the computer science profession after graduation took more computer science courses on average and earned more computer science credits than business majors who entered business occupations after graduation.

---

<sup>1</sup> See the Methodology and Technical Notes section, Definition of Terms and Variable Coding, for a detailed description of what a "course" encompasses.

<sup>2</sup> See the Methodology and Technical Notes section, Definition of Terms and Variable Coding, for a detailed description of what a "credit" encompasses.

<sup>3</sup> Differences cited in the above highlights are statistically significant at the 5 percent level of significance. Where applicable, Bonferroni adjustments for multiple comparisons were used.

## Contents

Highlights . . . . .	iii
Introduction . . . . .	1
Tables . . . . .	3
1. Course-taking behavior of 1985-86 bachelor's degree recipients, by major and program area: 1987 . . . . .	3
2. Course-taking behavior of business and management majors, by principal occupation 1 year after graduation: 1987 . . . . .	8
3. Course-taking behavior of education majors, by principal occupation 1 year after graduation: 1987 . . . . .	16
4. Course-taking behavior of engineering majors, by principal occupation 1 year after graduation: 1987 . . . . .	20
5. Course-taking behavior of health care majors, by principal occupation 1 year after graduation: 1987 . . . . .	28
6. Course-taking behavior of public affairs and social services majors, by principal occupation 1 year after graduation: 1987 . . . . .	32
7. Course-taking behavior of math, computer science, and physical science majors, by principal occupation 1 year after graduation: 1987 . . . . .	36
8. Course-taking behavior of social science majors, by principal occupation 1 year after graduation: 1987 . . . . .	44
9. Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987 . . . . .	48
10. Course-taking behavior of psychology majors, by principal occupation 1 year after graduation: 1987 . . . . .	60
Methodology and Technical Notes . . . . .	65
The Survey . . . . .	65
Data File Organization . . . . .	66
Data Reliability . . . . .	66
Definition of Terms and Variable Coding . . . . .	68
Computation of Estimates . . . . .	72
Acknowledgments . . . . .	73
For More Information . . . . .	73



## Contents--continued

Appendices . . . . .	75
Appendix A: Standard Errors Table . . . . .	75
Appendix B: Major fields of study, by two-digit Classification of Instruction Program codes	81
Appendix C: Occupational Codes . . . . .	85

## Introduction

The data in this E.D. TAB are based on transcripts collected as part of the 1987 Recent College Graduates Study (RCGS). The RCGS collects data on a nationally representative sample of college graduates (both bachelor's and master's degree recipients) to obtain information on their educational and occupational experiences approximately 1 year after graduation. The RCGS also responds to a congressional mandate to determine the availability of qualified teachers for the nation's elementary and secondary schools. This study has been conducted six times in the past (1976, 1978, 1981, 1985, 1987, and 1991). The 1987 RCGS is unique among the other RCGSS in that it collected postsecondary transcripts on eligible bachelor's degree recipients in the 1987 sample. The data from these transcripts form the basis of this E.D. TAB.

An earlier report, *Occupational and Educational Outcomes of 1985-86 Bachelor's Degree Recipients*, describes the distribution, by major fields of study, of occupations held by the 1985-86 graduates about 1 year after graduation. That report provides information on such occupational characteristics as: labor market status, employment status, job satisfaction, and salary. This E.D. TAB parallels that report in that, to the extent possible, the same major fields of study and occupational groups used in that report are found here. Ten major fields of study are discussed in the report. They are: business and management, education, engineering, health care, public affairs and social services, biological and life sciences, math/computer science/physical science, social science, humanities, and psychology. This E.D. TAB will report on the course-taking behavior of 9 of these 10 majors. An insufficient number of biology majors entered into the labor market to identify their course-taking behavior by occupation.

The last section of this E.D. TAB, the Methodology section, defines the terms related to program areas and major fields of study that are used in this E.D. TAB.

2

Table 1.--Course-taking behavior of 1985-86 bachelor's degree recipients, by major and program area: 1987

Program area and course-taking characteristics	Major field of study										
	All majors	Business/ management	Education	Engi- neering	Health care	Public affairs & social services	Biology <sup>2</sup> and life science	Math, <sup>3</sup> computer science & phy. sci.	Social science	Human- ities	Psy- chology
Number of majors	921,608	237,462 <sup>(4)</sup>	83,344	87,736	62,125	25,777	35,953	91,306	79,370	87,543	38,891
All courses:											
Avg. no. of courses taken <sup>5</sup>	52.1	50.2	56.8	56.5	51.1	50.5	51.7	52.2	48.1	51.7	49.7
Avg. no. of credits earned <sup>6</sup>	152.0	149.1	159.9	167.8	159.8	146.6	148.9	155.0	139.7	142.3	143.7
Average GPA <sup>7</sup>	2.7	2.7	2.7	2.7	2.8	2.6	2.8	2.8	2.6	2.8	2.8
Business and management:											
Pct. who took 1 or more courses <sup>8</sup>	59.0	99.0 <sup>(9)</sup>	29.9	39.9	27.3	60.0	21.1	57.5	57.0	38.3	44.8
Avg. no. of courses taken	10.6	18.9 <sup>(10)</sup>	3.5	2.9	3.1	3.5	2.4	6.9	4.5	3.0	3.8
Avg. no. of credits earned	32.9	58.6 <sup>(11)</sup>	10.3	8.9	9.5	10.7	6.4	21.9	13.8	8.6	11.3
Average GPA	2.7	2.8 <sup>(12)</sup>	2.4	2.7	2.9	2.4	2.9	2.9	2.5	2.8	2.6
Computer science:											
Pct. who took 1 or more courses	48.2	60.8	29.1	57.8	20.0	36.3	41.5	84.9	41.6	28.2	38.5
Avg. no. of courses taken	3.0	2.2	1.6	2.2	1.2	1.7	1.4	7.9	1.7	1.6	1.5
Avg. no. of credits earned	8.9	6.6	4.2	6.3	3.5	4.7	4.0	24.5	4.8	4.6	4.3
Average GPA	2.8	2.7	2.7	2.9	2.9	2.6	3.1	3.0	2.6	2.9	2.7
Education:											
Pct. who took 1 or more courses	41.8	31.2	98.3	22.2	46.3	45.7	36.0	32.6	36.0	40.6	52.8
Avg. no. of courses taken	5.8	2.1	17.0	1.9	3.3	3.1	2.4	2.9	2.5	3.7	3.2
Avg. no. of credits earned	16.4	5.0	50.0	4.0	9.4	8.3	5.8	7.7	6.0	10.1	8.4
Average GPA	3.1	3.2	2.9	3.3	3.1	2.9	3.3	3.2	3.0	3.0	3.1
Engineering:											
Pct. who took 1 or more courses	20.8	12.0	10.9	98.6	6.8	5.9	9.1	29.9	8.6	8.0	4.3
Avg. no. of courses taken	12.8	3.0	3.3	24.3	3.8	--	1.7	4.7	2.6	1.8	--
Avg. no. of credits earned	36.1	8.4	9.4	68.0	10.3	--	5.0	13.5	7.5	5.0	--
Average GPA	2.7	2.5	2.8	3.7	3.0	--	-- <sup>(13)</sup>	2.7	2.4	2.8	--
Fine and applied arts:											
Pct. who took 1 or more courses	70.7	65.3	85.3	43.8	63.4	66.9	78.6	66.0	76.3	90.3	80.6
Avg. no. of courses taken	4.7	2.4	5.6	2.4	3.3	3.1	2.8	3.2	3.2	13.7	4.0
Avg. no. of credits earned	11.3	6.2	12.3	5.9	8.1	7.2	6.4	7.3	8.1	32.8	9.2
Average GPA	3.0	3.0	3.0	3.1	3.2	2.9	3.2	3.1	2.9	3.1	2.9

12

12

Table 1.--Course-taking behavior of 1985-86 bachelor's degree recipients, by major and program area: 1987--Continued

Program area and course-taking characteristics	Major field of study										
	All majors	Business/ management	Education	Engi- neering	Health care	Public affairs & social services	Biology and life science	Math, computer science & phy. sci.	Social science	Human- ities	Psy- chology
Foreign language:											
Pct. who took 1 or more courses	42.4	33.6	33.7	20.6	33.3	37.5	58.0	44.5	66.3	61.7	59.0
Avg. no. of courses taken	3.4	2.5	2.8	2.2	2.6	3.2	3.2	3.0	3.8	5.9	3.2
Avg. no. of credits earned	11.2	8.4	9.4	7.7	8.7	10.8	10.8	10.2	12.0	19.1	10.4
Average GPA	2.8	2.9	2.7	2.8	2.9	2.7	3.0	3.0	2.6	2.9	2.9
Health/nursing:											
Pct. who took 1 or more courses	27.6	21.8	42.6	12.6	93.8( <sup>16</sup> )	31.0	24.1	18.5	17.6	15.7	30.4
Avg. no. of courses taken	5.8	1.7	3.0	2.2	17.5	2.2	4.3	2.8	1.9	1.7	3.1
Avg. no. of credits earned	18.6	4.6	8.7	6.5	59.2	6.4	9.8	7.7	5.1	4.4	9.5
Average GPA	3.0	3.1	3.0	3.0	2.9	3.0	3.3	3.2	3.0	2.9	3.2
History:											
Pct. who took 1 or more courses	74.8	74.3	86.3	58.0	60.6	81.9	73.2	70.7	89.7	78.4	73.7
Avg. no. of courses taken	2.6	2.1	2.7	2.0	1.9	2.5	2.2	2.2	5.5	2.6	2.3
Avg. no. of credits earned	8.1	2.7	8.4	6.0	6.0	7.6	6.5	6.7	16.5	7.9	7.3
Average GPA	2.7	2.6	2.5	2.7	2.8	2.5	3.0	2.8	2.7	2.7	2.7
Letters/literature:											
Pct. who took 1 or more courses	95.2	96.0	97.3	93.8	91.8	92.3	93.8	94.5	96.1	95.4	92.3
Avg. no. of courses taken	4.9	4.3	5.2	3.3	3.9	4.6	3.9	4.1	4.7	9.0	4.7
Avg. no. of credits earned	14.8	13.1	16.0	9.8	11.9	13.9	11.9	12.6	14.0	27.2	14.1
Average GPA	2.7	2.6	2.6	2.7	2.8	2.5	2.9	2.7	2.6	2.9	2.7
Life science: <sup>14</sup>											
Pct. who took 1 or more courses	63.2	54.2	80.6	26.1	93.4	67.8	99.3	55.2	62.1	65.2	75.1
Avg. no. of courses taken	3.6	2.0	3.0	2.1	6.0	2.2	14.7	3.4	2.2	2.3	3.0
Avg. no. of credits earned	11.7	6.3	9.7	6.7	20.5	7.4	45.6	10.6	6.7	6.8	9.5
Average GPA	2.5	2.6	2.4	2.7	2.7	2.2	2.9	2.8	2.4	2.4	2.5
Math:											
Pct. who took 1 or more courses	88.6	95.0	89.8	97.8	77.2	78.9	96.5	97.8	86.3	69.5	82.5
Avg. no. of courses taken	4.2	3.9	3.2	6.8	2.6	2.6	3.6	8.1	3.1	2.5	3.0
Avg. no. of credits earned	13.7	12.3	10.1	23.8	8.3	7.9	11.9	27.0	9.5	7.5	9.0
Average GPA	2.5	2.5	2.4	2.6	2.7	2.1	2.5	2.6	2.2	2.5	2.4

Table 1.--Course-taking behavior of 1985-86 bachelor's degree recipients, by major and program area: 1987--Continued

Program area and course-taking characteristics	Major field of study										
	All majors	Business/ management	Education	Engi- neering	Health care	Public affairs & social services	Biology and life science	Math, computer science & phy. sci.	Social science	Human- ities	Psy- chology
Philosophy/religion/theology:											
Pct. who took 1 or more courses	60.7	58.1	54.1	40.7	65.6	63.6	59.2	62.3	72.4	77.5	75.6
Avg. no. of courses taken	3.1	2.3	2.4	1.8	2.6	2.2	2.3	2.5	2.9	7.8	3.2
Avg. no. of credits earned	9.2	6.9	7.1	5.5	8.0	6.6	7.3	7.6	8.5	22.7	9.8
Average GPA	2.9	2.9	2.7	3.0	3.0	2.6	3.2	3.0	2.7	2.9	2.9
Physical science: 15											
Pct. who took 1 or more courses	77.2	66.6	77.7	97.1	87.1	71.4	98.8	84.7	79.4	63.3	73.6
Avg. no. of courses taken	4.8	2.4	3.0	8.7	4.9	2.4	11.0	9.7	3.1	2.7	3.0
Avg. no. of credits earned	14.5	7.2	9.3	25.9	15.8	7.6	31.4	28.8	9.2	7.8	9.1
Average GPA	2.5	2.6	2.4	2.6	2.6	2.2	2.6	2.7	2.4	2.5	2.4
Psychology:											
Pct. who took 1 or more courses	76.7	77.7	87.7	57.2	89.1	88.4	80.2	68.9	71.8	74.6	97.6
Avg. no. of courses taken	3.0	1.9	2.9	1.7	3.4	3.2	2.2	1.9	2.7	2.3	13.9
Avg. no. of credits earned	9.1	6.0	9.0	5.3	10.9	10.1	7.0	6.1	8.1	6.5	42.6
Average GPA	2.8	2.8	2.6	2.9	2.9	2.5	3.2	3.0	2.7	2.8	3.0
Public affairs:											
Pct. who took 1 or more courses	16.7	16.2	16.5	4.4	13.5	89.6	9.0	9.3	25.6	9.7	25.9
Avg. no. of courses taken	3.9	1.6	2.2	1.7	2.3	12.8	1.8	2.0	4.0	1.5	2.9
Avg. no. of credits earned	12.0	4.9	6.5	4.7	7.5	40.2	5.3	5.6	13.0	4.6	9.3
Average GPA	3.0	3.0	2.8	3.1	3.1	3.0	--	3.0	3.1	3.0	3.1
Social science:											
Pct. who took 1 or more courses	95.5	98.1	95.4	92.3	92.6	97.7	90.7	92.8	99.6	92.6	97.6
Avg. no. of courses taken	5.8	6.4	4.2	3.2	3.5	9.2	3.1	4.1	13.6	4.1	6.1
Avg. no. of credits earned	18.1	20.3	13.1	10.0	11.4	28.6	9.9	13.1	41.7	12.4	18.4
Average GPA	2.7	2.6	2.5	2.8	2.9	2.6	3.0	2.8	2.8	2.8	2.8
Vocational/technical:											
Pct. who took 1 or more courses	40.5	39.7	37.1	56.3	40.5	29.1	21.4	59.7	22.0	25.6	21.3
Avg. no. of courses taken	3.2	2.4	3.7	3.2	2.3	1.7	1.5	2.3	1.8	2.3	2.0
Avg. no. of credits earned	9.6	7.2	10.9	8.9	6.6	5.0	4.0	7.0	5.3	7.2	6.5
Average GPA	3.0	3.0	2.9	3.1	3.1	2.9	3.2	3.0	2.8	3.0	3.1

Table 1.--Course-taking behavior of 1985-86 bachelor's degree recipients, by major and program area: 1987--Continued

Program area and course-taking characteristics	Major field of study							Social science	Human- ities	Psy- chology
	All majors	Business/ management	Education	Engi- neering	Health care	Public affairs & social services	Biology and life science			
Other:										
Pct. who took 1 or more courses	84.7	86.8	91.7	75.6	74.8	89.4	81.0	81.1	83.2	82.6
Avg. no. of courses taken	5.9	4.5	7.3	4.6	3.9	6.1	4.5	4.3	4.4	5.3
Avg. no. of credits earned	12.2	8.6	13.2	7.1	7.1	11.6	7.5	7.2	7.8	10.7
Average GPA	2.9	2.9	2.9	3.1	3.0	2.8	3.0	3.0	2.7	2.8

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

- <sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.
- <sup>2</sup>An insufficient number of biological and life science majors entered the labor force after graduation to describe their course-taking behavior by principal occupation 1 year after graduation.
- <sup>3</sup>Because this field is a combination of three separate major fields of study, the results reflect the average for the three fields. For example, for the three majors combined and the program area of physical science the pct. who took 1 or more courses, the avg. no. of courses taken, and the avg. no. of credits earned is 84.7, 9.7, and 28.8, respectively. For physical science majors alone the numbers are 99.5, 20.1, and 58.4, respectively.
- <sup>4</sup>These are estimates of the number of majors based on the sample weights on the file. These estimates differ somewhat from the counts provided by the Integrated Postsecondary Education Data System due to sampling and nonsampling errors.
- <sup>5</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.
- <sup>6</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.
- <sup>7</sup>See the methodology section for an explanation of how this variable was calculated.
- <sup>8</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.
- <sup>9</sup>The 99.0 percent means that among business and management majors 99.0 percent took one or more courses in business and management.
- <sup>10</sup>The 18.9 is the average number of business and management courses taken by business and management majors.
- <sup>11</sup>The 58.6 is the average number of credits earned by business and management majors in the business and management program area.
- <sup>12</sup>The 2.8 figure is the average grade point average earned by business and management majors in business and management courses.

13 In some cases there may be too few cases to calculate average GPA but not the average number of credit hours earned or the average number of courses taken because a student may have taken a course but not received a grade in it.

14 The methodology section includes a list of program areas associated with life science.

15 Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

16 The fact that not all majors in a given major field of study took at least one course in that major (e.g., only 93.8 percent of health majors took at least one course in health/nursing) can be attributable to nonsampling error. Sources of nonsampling error include differences between what the student and transcript report as the student's major field of study (6 percent of students reported a major field of study which differed from that reported on their transcript), the coding of course titles into the appropriate 1 out of 78 areas, the inability to code special courses of study, etc.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 2.--Course-taking behavior of business and management majors,  
by principal occupation 1 year after graduation: 1987

Program area and course-taking <sup>1</sup> characteristics	Principal occupation		
	Business & manage- ment	Computer science	Sales
Number of majors	105,800	8,726	35,079
All courses:			
Avg. no. of courses taken <sup>2</sup>	49.8	49.7	50.0
Avg. no. of credits earned <sup>3</sup>	148.7	152.0	146.3
Average GPA <sup>4</sup>	2.8	2.9	2.5
Business and management:			
Pct. who took 1 or more courses <sup>5</sup>	98.7	98.8	99.4
Avg. no. of courses taken	19.4	17.9	19.0
Avg. no. of credits earned	60.2	56.9	58.3
Average GPA	2.8	3.0	2.6
Computer science:			
Pct. who took 1 or more courses	62.6	81.0	53.6
Avg. no. of courses taken	2.1	4.7	2.0
Avg. no. of credits earned	6.2	15.0	5.7
Average GPA	2.8	3.1	2.7
Education:			
Pct. who took 1 or more courses	30.3	23.2	30.6
Avg. no. of courses taken	1.8	--	1.7
Avg. no. of credits earned	4.1	--	3.7
Average GPA	3.2	--	3.2
Engineering:			
Pct. who took 1 or more courses	11.5	16.8	11.2
Avg. no. of courses taken	2.7	--	3.4
Avg. no. of credits earned	7.6	--	8.5
Average GPA	2.4	--	2.4
Fine and applied arts:			
Pct. who took 1 or more courses	64.6	62.3	69.0
Avg. no. of courses taken	2.4	1.8	2.2
Avg. no. of credits earned	6.3	5.5	6.1
Average GPA	3.1	3.1	2.9
Foreign language:			
Pct. who took 1 or more courses	34.2	21.8	27.1
Avg. no. of courses taken	2.4	--	2.7
Avg. no. of credits earned	8.2	--	9.0
Average GPA	3.0	--	2.9



Table 2.--Course-taking behavior of business and management majors, by principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking <sup>1</sup> characteristics <sup>1</sup>	Principal occupation		
	Business & manage- ment	Computer science	Sales
Health/nursing:			
Pct. who took 1 or more courses	20.8	14.8	19.1
Avg. no. of courses taken	1.5	--	1.7
Avg. no. of credits earned	4.2	--	4.5
Average GPA	3.2	--	3.0
History:			
Pct. who took 1 or more courses	74.4	64.0	77.2
Avg. no. of courses taken	2.2	1.8	2.2
Avg. no. of credits earned	6.7	6.0	6.7
Average GPA	2.7	2.8	2.5
Letters/literature:			
Pct. who took 1 or more courses	95.5	93.0	98.5
Avg. no. of courses taken	4.2	4.3	4.4
Avg. no. of credits earned	12.9	13.9	13.1
Average GPA	2.7	2.8	2.6
Life science: <sup>6</sup>			
Pct. who took 1 or more courses	52.3	44.7	58.5
Avg. no. of courses taken	1.9	1.8	1.9
Avg. no. of credits earned	6.1	6.6	5.8
Average GPA	2.6	2.8	2.4
Math:			
Pct. who took 1 or more courses	95.1	94.0	93.4
Avg. no. of courses taken	3.8	4.3	4.0
Avg. no. of credits earned	12.2	14.0	12.4
Average GPA	2.6	2.6	2.3
Philosophy/religion/theology:			
Pct. who took 1 or more courses	59.1	53.9	59.2
Avg. no. of courses taken	2.2	2.4	2.2
Avg. no. of credits earned	6.8	7.4	6.6
Average GPA	3.0	3.0	2.7
Physical science: <sup>7</sup>			
Pct. who took 1 or more courses	68.2	66.2	68.4
Avg. no. of courses taken	2.3	2.7	2.3
Avg. no. of credits earned	7.0	8.7	6.9
Average GPA	2.7	2.7	2.4

Table 2.--Course-taking behavior of business and management majors, by principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation		
	Business & manage- ment	Computer science	Sales
<b>Psychology:</b>			
Pct. who took 1 or more courses	76.9	76.2	77.7
Avg. no. of courses taken	2.0	1.7	1.8
Avg. no. of credits earned	6.2	6.0	5.5
Average GPA	2.8	3.1	2.6
<b>Public affairs:</b>			
Pct. who took 1 or more courses	16.5	15.2	14.2
Avg. no. of courses taken	1.6	--	1.3
Avg. no. of credits earned	4.5	--	4.2
Average GPA	3.0	--	3.0
<b>Social science:</b>			
Pct. who took 1 or more courses	98.6	96.0	97.2
Avg. no. of courses taken	6.3	5.8	6.5
Avg. no. of credits earned	20.1	18.0	20.3
Average GPA	2.7	2.9	2.5
<b>Vocational/technical:</b>			
Pct. who took 1 or more courses	38.8	53.9	35.5
Avg. no. of courses taken	2.4	1.9	2.0
Avg. no. of credits earned	7.2	6.0	5.9
Average GPA	3.0	3.2	2.8
<b>Other:</b>			
Pct. who took 1 or more courses	85.8	86.0	88.0
Avg. no. of courses taken	4.2	4.7	4.7
Avg. no. of credits earned	8.1	8.6	8.9
Average GPA	2.9	2.9	2.9

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 2.--Course-taking behavior of business and management majors,  
by principal occupation 1 year after graduation: 1987  
--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Clerk	Labor
Number of majors	33,993	6,626
All courses:		
Avg. no. of courses taken <sup>2</sup>	49.9	53.3
Avg. no. of credits earned <sup>3</sup>	148.5	153.7
Average GPA <sup>4</sup>	2.6	2.4
Business and management:		
Pct. who took 1 or more courses <sup>5</sup>	99.7	98.4
Avg. no. of courses taken	18.7	18.7
Avg. no. of credits earned	58.0	56.7
Average GPA	2.7	2.5
Computer science:		
Pct. who took 1 or more courses	61.6	56.9
Avg. no. of courses taken	2.2	2.8
Avg. no. of credits earned	6.6	7.4
Average GPA	2.5	2.6
Education:		
Pct. who took 1 or more courses	32.0	37.8
Avg. no. of courses taken	2.6	--
Avg. no. of credits earned	6.3	--
Average GPA	3.1	--
Engineering:		
Pct. who took 1 or more courses	7.2	25.4
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Fine and applied arts:		
Pct. who took 1 or more courses	64.4	69.1
Avg. no. of courses taken	2.3	2.0
Avg. no. of credits earned	5.9	4.8
Average GPA	3.0	2.9
Foreign language:		
Pct. who took 1 or more courses	36.2	24.9
Avg. no. of courses taken	2.4	--
Avg. no. of credits earned	8.1	--
Average GPA	3.0	--

Table 2.--Course-taking behavior of business and management majors,  
by principal occupation 1 year after graduation: 1987  
--Continued

Program area and course-taking <sub>1</sub> characteristics <sup>1</sup>	Principal occupation	
	Clerk	Labor
<b>Health/nursing:</b>		
Pct. who took 1 or more courses	25.1	16.7
Avg. no. of courses taken	1.5	--
Avg. no. of credits earned	4.0	--
Average GPA	3.1	--
<b>History:</b>		
Pct. who took 1 or more courses	75.8	79.9
Avg. no. of courses taken	2.0	2.3
Avg. no. of credits earned	6.5	7.0
Average GPA	2.6	2.2
<b>Letters/literature:</b>		
Pct. who took 1 or more courses	96.0	95.0
Avg. no. of courses taken	4.5	5.1
Avg. no. of credits earned	13.9	15.0
Average GPA	2.6	2.4
<b>Life science:<sup>6</sup></b>		
Pct. who took 1 or more courses	56.5	67.7
Avg. no. of courses taken	1.9	2.4
Avg. no. of credits earned	6.0	7.7
Average GPA	2.6	2.0
<b>Math:</b>		
Pct. who took 1 or more courses	96.5	96.3
Avg. no. of courses taken	3.7	4.6
Avg. no. of credits earned	11.7	13.9
Average GPA	2.5	2.3
<b>Philosophy/religion/theology:</b>		
Pct. who took 1 or more courses	55.6	50.5
Avg. no. of courses taken	2.4	2.5
Avg. no. of credits earned	7.3	7.5
Average GPA	2.9	2.6
<b>Physical science:<sup>7</sup></b>		
Pct. who took 1 or more courses	62.0	68.3
Avg. no. of courses taken	2.3	2.0
Avg. no. of credits earned	6.9	6.1
Average GPA	2.5	2.6

Table 2.--Course-taking behavior of business and management majors,  
by principal occupation 1 year after graduation: 1987  
--Continued

Program area and course-taking <sup>1</sup> characteristics <sup>1</sup>	Principal occupation	
	Clerk	Labor
<b>Psychology:</b>		
Pct. who took 1 or more courses	80.9	85.2
Avg. no. of courses taken	1.9	2.2
Avg. no. of credits earned	5.9	6.7
Average GPA	2.8	2.6
<b>Public affairs:</b>		
Pct. who took 1 or more courses	14.3	14.8
Avg. no. of courses taken	1.4	--
Avg. no. of credits earned	4.3	--
Average GPA	2.9	--
<b>Social science:</b>		
Pct. who took 1 or more courses	97.6	100.0
Avg. no. of courses taken	6.5	6.4
Avg. no. of credits earned	20.7	19.8
Average GPA	2.5	2.4
<b>Vocational/technical:</b>		
Pct. who took 1 or more courses	40.6	41.5
Avg. no. of courses taken	2.4	--
Avg. no. of credits earned	7.0	--
Average GPA	2.8	--
<b>Other:</b>		
Pct. who took 1 or more courses	87.6	88.6
Avg. no. of courses taken	4.4	5.6
Avg. no. of credits earned	8.1	10.8
Average GPA	2.9	2.9

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 3.--Course-taking behavior of education majors, by  
principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation		
	Educator	Clerk	Business & management
Number of majors	53,105	5,626	3,338
All courses:			
Avg. no. of courses taken <sup>2</sup>	56.5	56.6	57.0
Avg. no. of credits earned <sup>3</sup>	161.4	155.1	158.4
Average GPA <sup>4</sup>	2.7	2.6	2.5
Business and management:			
Pct. who took 1 or more courses <sup>5</sup>	24.2	38.8	44.8
Avg. no. of courses taken	3.4	3.4	3.6
Avg. no. of credits earned	9.8	10.0	11.0
Average GPA	2.5	2.4	--
Computer science:			
Pct. who took 1 or more courses	28.7	29.0	40.1
Avg. no. of courses taken	1.5	2.0	--
Avg. no. of credits earned	4.1	5.5	--
Average GPA	2.8	2.4	--
Education:			
Pct. who took 1 or more courses	99.4	95.4	96.9
Avg. no. of courses taken	18.1	15.7	15.3
Avg. no. of credits earned	54.4	43.9	43.9
Average GPA	2.9	2.8	2.9
Engineering:			
Pct. who took 1 or more courses	9.7	10.0	15.7
Avg. no. of courses taken	2.7	--	--
Avg. no. of credits earned	7.6	--	--
Average GPA	2.8	--	--
Fine and applied arts:			
Pct. who took 1 or more courses	87.1	86.1	81.9
Avg. no. of courses taken	5.9	5.8	4.3
Avg. no. of credits earned	13.0	12.3	9.4
Average GPA	3.0	2.9	2.8
Foreign language:			
Pct. who took 1 or more courses	34.0	27.9	43.6
Avg. no. of courses taken	2.9	3.0	2.8
Avg. no. of credits earned	9.8	10.0	9.4
Average GPA	2.8	2.5	2.6



Table 3.--Course-taking behavior of education majors, by  
principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation		
	Educator	Clerk	Business & management
<b>Health/nursing:</b>			
Pct. who took 1 or more courses	40.0	44.4	48.0
Avg. no. of courses taken	2.3	3.7	2.8
Avg. no. of credits earned	6.5	12.1	7.7
Average GPA	3.0	3.0	2.7
<b>History:</b>			
Pct. who took 1 or more courses	87.7	85.2	85.3
Avg. no. of courses taken	2.7	2.7	2.8
Avg. no. of credits earned	8.5	8.0	8.3
Average GPA	2.5	2.4	2.4
<b>Letters/literature:</b>			
Pct. who took 1 or more courses	97.5	96.5	97.7
Avg. no. of courses taken	5.4	5.6	4.4
Avg. no. of credits earned	16.5	17.1	13.6
Average GPA	2.6	2.5	2.3
<b>Life science:<sup>6</sup></b>			
Pct. who took 1 or more courses	80.8	75.9	72.1
Avg. no. of courses taken	2.8	2.6	3.2
Avg. no. of credits earned	9.1	8.2	10.5
Average GPA	2.4	2.2	2.2
<b>Math:</b>			
Pct. who took 1 or more courses	90.7	87.7	89.6
Avg. no. of courses taken	3.3	3.1	3.3
Avg. no. of credits earned	10.6	9.5	10.4
Average GPA	2.4	2.3	2.2
<b>Philosophy/religion/theology:</b>			
Pct. who took 1 or more courses	53.9	54.8	53.1
Avg. no. of courses taken	2.5	2.3	2.1
Avg. no. of credits earned	7.3	7.0	6.2
Average GPA	2.7	2.5	2.6
<b>Physical science:<sup>7</sup></b>			
Pct. who took 1 or more courses	77.3	82.1	72.1
Avg. no. of courses taken	2.9	2.9	3.0
Avg. no. of credits earned	9.1	8.9	9.7
Average GPA	2.5	2.3	2.3

Table 3.--Course-taking behavior of education majors, by  
principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation		
	Educator	Clerk	Business & management
<b>Psychology:</b>			
Pct. who took 1 or more courses	88.2	87.2	91.9
Avg. no. of courses taken	2.9	2.6	2.5
Avg. no. of credits earned	9.0	8.4	7.9
Average GPA	2.7	2.4	2.4
<b>Public affairs:</b>			
Pct. who took 1 or more courses	13.7	16.8	20.3
Avg. no. of courses taken	2.0	--	--
Avg. no. of credits earned	6.1	--	--
Average GPA	2.9	--	--
<b>Social science:</b>			
Pct. who took 1 or more courses	95.5	93.7	97.7
Avg. no. of courses taken	4.0	5.3	4.8
Avg. no. of credits earned	12.6	15.9	14.9
Average GPA	2.6	2.3	2.3
<b>Vocational/technical:</b>			
Pct. who took 1 or more courses	35.1	42.7	42.3
Avg. no. of courses taken	3.2	3.5	4.9
Avg. no. of credits earned	9.9	9.6	14.8
Average GPA	3.0	2.9	2.8
<b>Other:</b>			
Pct. who took 1 or more courses	91.9	95.3	94.2
Avg. no. of courses taken	6.2	7.2	9.0
Avg. no. of credits earned	11.3	12.9	16.0
Average GPA	3.0	2.9	2.8

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 4.--Course-taking behavior of engineering majors, by principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Engineering	Business & management
Number of majors	49,899	3,834
All courses:		
Avg. no. of courses taken <sup>2</sup>	58.5	61.2
Avg. no. of credits earned <sup>3</sup>	168.3	177.2
Average GPA <sup>4</sup>	2.7	2.4
Business and management:		
Pct. who took 1 or more courses <sup>5</sup>	34.5	56.2
Avg. no. of courses taken	2.3	--
Avg. no. of credits earned	7.1	--
Average GPA	2.8	--
Computer science:		
Pct. who took 1 or more courses	58.9	42.9
Avg. no. of courses taken	2.2	--
Avg. no. of credits earned	6.0	--
Average GPA	2.9	--
Education:		
Pct. who took 1 or more courses	21.2	30.6
Avg. no. of courses taken	1.6	--
Avg. no. of credits earned	3.1	--
Average GPA	3.4	--
Engineering:		
Pct. who took 1 or more courses	98.8	97.3
Avg. no. of courses taken	25.8	21.1
Avg. no. of credits earned	71.8	58.7
Average GPA	2.8	2.6
Fine and applied arts:		
Pct. who took 1 or more courses	44.7	45.2
Avg. no. of courses taken	2.3	--
Avg. no. of credits earned	5.7	--
Average GPA	3.2	--
Foreign language:		
Pct. who took 1 or more courses	18.6	25.1
Avg. no. of courses taken	2.0	--
Avg. no. of credits earned	6.9	--
Average GPA	2.8	--

Table 4.--Course-taking behavior of engineering majors, by  
principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Engineering	Business & management
<b>Health/nursing:</b>		
Pct. who took 1 or more courses	10.4	11.0
Avg. no. of courses taken	2.5	--
Avg. no. of credits earned	7.2	--
Average GPA	3.0	--
<b>History:</b>		
Pct. who took 1 or more courses	56.9	73.0
Avg. no. of courses taken	2.0	--
Avg. no. of credits earned	6.0	--
Average GPA	2.8	--
<b>Letters/literature:</b>		
Pct. who took 1 or more courses	95.5	91.3
Avg. no. of courses taken	3.2	3.7
Avg. no. of credits earned	9.5	10.0
Average GPA	2.7	2.4
<b>Life science:<sup>6</sup></b>		
Pct. who took 1 or more courses	23.2	47.5
Avg. no. of courses taken	2.0	--
Avg. no. of credits earned	6.7	--
Average GPA	2.8	--
<b>Math:</b>		
Pct. who took 1 or more courses	98.7	100.0
Avg. no. of courses taken	6.9	5.9
Avg. no. of credits earned	24.5	21.7
Average GPA	2.6	2.3
<b>Philosophy/religion/theology:</b>		
Pct. who took 1 or more courses	41.7	55.2
Avg. no. of courses taken	1.9	--
Avg. no. of credits earned	5.6	--
Average GPA	3.0	--
<b>Physical science:<sup>7</sup></b>		
Pct. who took 1 or more courses	97.7	100.0
Avg. no. of courses taken	8.7	7.8
Avg. no. of credits earned	25.9	23.7
Average GPA	2.6	2.3

Table 4.--Course-taking behavior of engineering majors, by  
principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Engineering	Business & management
<b>Psychology:</b>		
Pct. who took 1 or more courses	60.9	65.3
Avg. no. of courses taken	1.6	--
Avg. no. of credits earned	5.0	--
Average GPA	3.0	--
<b>Public affairs:</b>		
Pct. who took 1 or more courses	4.0	5.5
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Social science:</b>		
Pct. who took 1 or more courses	93.3	94.1
Avg. no. of courses taken	3.1	3.9
Avg. no. of credits earned	9.6	12.1
Average GPA	2.9	2.4
<b>Vocational/technical:</b>		
Pct. who took 1 or more courses	53.1	63.9
Avg. no. of courses taken	2.6	--
Avg. no. of credits earned	7.2	--
Average GPA	3.1	--
<b>Other:</b>		
Pct. who took 1 or more courses	74.6	81.3
Avg. no. of courses taken	4.0	--
Avg. no. of credits earned	6.0	--
Average GPA	3.1	--

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 4.--Course-taking behavior of engineering majors, by  
principal occupation 1 year after graduation: 1987  
--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Labor	Technician
Number of majors	3,799	3,261
All courses:		
Avg. no. of courses taken <sup>2</sup>	60.6	58.7
Avg. no. of credits earned <sup>3</sup>	173.6	167.0
Average GPA <sup>4</sup>	2.5	2.6
Business and management:		
Pct. who took 1 or more courses <sup>5</sup>	52.5	43.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Computer science:		
Pct. who took 1 or more courses	61.8	64.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Education:		
Pct. who took 1 or more courses	27.7	17.8
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Engineering:		
Pct. who took 1 or more courses	100.0	100.0
Avg. no. of courses taken	22.4	22.4
Avg. no. of credits earned	63.0	64.0
Average GPA	2.7	2.6
Fine and applied arts:		
Pct. who took 1 or more courses	39.2	48.5
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Foreign language:		
Pct. who took 1 or more courses	22.1	21.8
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--



Table 4.--Course-taking behavior of engineering majors, by  
principal occupation 1 year after graduation: 1987  
--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Labor	Technician
<b>Health/nursing:</b>		
Pct. who took 1 or more courses	30.4	7.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>History:</b>		
Pct. who took 1 or more courses	61.3	51.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Letters/literature:</b>		
Pct. who took 1 or more courses	90.6	91.1
Avg. no. of courses taken	3.8	--
Avg. no. of credits earned	10.7	--
Average GPA	2.5	--
<b>Life science:<sup>6</sup></b>		
Pct. who took 1 or more courses	33.2	16.7
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Math:</b>		
Pct. who took 1 or more courses	97.2	100.0
Avg. no. of courses taken	6.1	6.4
Avg. no. of credits earned	21.7	22.1
Average GPA	2.3	2.7
<b>Philosophy/religion/theology:</b>		
Pct. who took 1 or more courses	25.3	50.0
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Physical science:<sup>7</sup></b>		
Pct. who took 1 or more courses	97.2	89.8
Avg. no. of courses taken	8.2	--
Avg. no. of credits earned	25.5	--
Average GPA	2.3	--

Table 4.--Course-taking behavior of engineering majors, by  
principal occupation 1 year after graduation: 1987  
--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Labor	Technician
<b>Psychology:</b>		
Pct. who took 1 or more courses	58.0	71.0
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Public affairs:</b>		
Pct. who took 1 or more courses	5.5	9.7
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Social science:</b>		
Pct. who took 1 or more courses	97.2	89.8
Avg. no. of courses taken	3.6	--
Avg. no. of credits earned	12.0	--
Average GPA	2.5	--
<b>Vocational/technical:</b>		
Pct. who took 1 or more courses	72.3	59.7
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Other:</b>		
Pct. who took 1 or more courses	80.2	96.8
Avg. no. of courses taken	--	4.6
Avg. no. of credits earned	--	9.0
Average GPA	--	3.2

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 5.--Course-taking behavior of health care majors, by  
principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Health care	Health technician	Business & management	Clerk
Number of majors	40,800	4,695	2,222	2,228
All courses:				
Avg. no. of courses taken <sup>2</sup>	50.5	54.0	49.2	53.1
Avg. no. of credits earned <sup>3</sup>	161.8	157.3	136.9	159.2
Average GPA <sup>4</sup>	2.8	2.8	2.6	2.5
Business and management:				
Pct. who took 1 or more courses <sup>5</sup>	22.6	29.3	53.0	53.7
Avg. no. of courses taken	2.0	--	--	--
Avg. no. of credits earned	6.6	--	--	--
Average GPA	3.1	--	--	--
Computer science:				
Pct. who took 1 or more courses	15.0	31.3	34.9	28.6
Avg. no. of courses taken	1.2	--	--	--
Avg. no. of credits earned	3.4	--	--	--
Average GPA	3.1	--	--	--
Education:				
Pct. who took 1 or more courses	46.2	29.1	61.6	68.9
Avg. no. of courses taken	2.8	--	--	--
Avg. no. of credits earned	8.0	--	--	--
Average GPA	3.2	--	--	--
Engineering:				
Pct. who took 1 or more courses	5.1	4.5	7.2	11.9
Avg. no. of courses taken	2.5	--	--	--
Avg. no. of credits earned	6.9	--	--	--
Average GPA	2.8	--	--	--
Fine and applied arts:				
Pct. who took 1 or more courses	62.0	69.9	70.3	68.7
Avg. no. of courses taken	3.1	2.2	--	2.7
Avg. no. of credits earned	7.6	5.0	--	7.0
Average GPA	3.2	3.3	--	--
Foreign language:				
Pct. who took 1 or more courses	30.3	37.4	41.6	47.2
Avg. no. of courses taken	2.5	--	--	--
Avg. no. of credits earned	8.1	--	--	--
Average GPA	3.0	--	--	--

Table 5.--Course-taking behavior of health care majors, by  
principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Health care	Health technician	Business & management	Clerk
<b>Health/nursing:</b>				
Pct. who took 1 or more courses	98.2	95.5	93.6	86.8
Avg. no. of courses taken	18.4	16.9	13.2	9.4
Avg. no. of credits earned	64.4	48.0	37.1	31.0
Average GPA	2.9	3.0	2.8	3.0
<b>History:</b>				
Pct. who took 1 or more courses	60.3	57.3	38.6	65.7
Avg. no. of courses taken	2.0	1.6	--	--
Avg. no. of credits earned	6.3	5.3	--	--
Average GPA	2.9	--	--	--
<b>Letters/literature:</b>				
Pct. who took 1 or more courses	91.3	94.9	83.0	99.3
Avg. no. of courses taken	3.6	3.9	4.6	5.7
Avg. no. of credits earned	11.2	11.8	14.2	17.0
Average GPA	2.8	2.7	2.7	2.5
<b>Life science:<sup>6</sup></b>				
Pct. who took 1 or more courses	94.6	95.3	93.0	94.8
Avg. no. of courses taken	5.8	9.3	5.5	3.2
Avg. no. of credits earned	19.9	31.0	15.4	11.3
Average GPA	2.7	2.8	2.3	2.2
<b>Math:</b>				
Pct. who took 1 or more courses	75.4	90.8	70.9	77.3
Avg. no. of courses taken	2.4	2.7	--	3.5
Avg. no. of credits earned	7.8	9.1	--	10.3
Average GPA	2.7	2.7	--	2.1
<b>Philosophy/religion/theology:</b>				
Pct. who took 1 or more courses	66.7	73.8	57.7	48.5
Avg. no. of courses taken	2.8	2.2	1.5	--
Avg. no. of credits earned	8.7	6.6	4.3	--
Average GPA	3.0	3.0	2.7	--
<b>Physical science:<sup>7</sup></b>				
Pct. who took 1 or more courses	87.2	95.3	76.5	76.1
Avg. no. of courses taken	4.3	8.6	4.0	2.5
Avg. no. of credits earned	14.4	25.4	10.2	8.2
Average GPA	2.6	2.6	2.2	2.4

Table 5.--Course-taking behavior of health care majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Health care	Health technician	Business & management	Clerk
<b>Psychology:</b>				
Pct. who took 1 or more courses	90.6	82.5	89.2	89.4
Avg. no. of courses taken	3.5	1.9	3.9	5.4
Avg. no. of credits earned	11.1	5.8	12.4	16.3
Average GPA	3.0	3.0	2.5	2.3
<b>Public affairs:</b>				
Pct. who took 1 or more courses	11.7	9.3	21.1	32.0
Avg. no. of courses taken	2.4	--	--	--
Avg. no. of credits earned	8.3	--	--	--
Average GPA	3.3	--	--	--
<b>Social science:</b>				
Pct. who took 1 or more courses	92.2	91.4	81.9	98.3
Avg. no. of courses taken	3.3	2.8	4.1	5.7
Avg. no. of credits earned	10.9	8.6	12.2	17.6
Average GPA	2.9	3.0	2.6	2.6
<b>Vocational/technical:</b>				
Pct. who took 1 or more courses	43.4	23.6	37.9	53.8
Avg. no. of courses taken	2.1	--	--	--
Avg. no. of credits earned	6.1	--	--	--
Average GPA	3.2	--	--	--
<b>Other:</b>				
Pct. who took 1 or more courses	71.2	82.1	76.3	76.7
Avg. no. of courses taken	3.9	3.6	--	--
Avg. no. of credits earned	6.9	5.5	--	--
Average GPA	3.1	3.2	--	--

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 6.--Course-taking behavior of public affairs and social services majors, by principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Public affairs/ Social worker	Service person
Number of majors	4,328	4,876
All courses:		
Avg. no. of courses taken <sup>2</sup>	52.2	51.5
Avg. no. of credits earned <sup>3</sup>	152.2	153.0
Average GPA <sup>4</sup>	2.7	2.6
Business and management:		
Pct. who took 1 or more courses <sup>5</sup>	49.4	67.2
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Computer science:		
Pct. who took 1 or more courses	39.9	29.5
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Education:		
Pct. who took 1 or more courses	59.1	44.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Engineering:		
Pct. who took 1 or more courses	3.3	7.2
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Fine and applied arts:		
Pct. who took 1 or more courses	59.9	65.9
Avg. no. of courses taken	--	2.7
Avg. no. of credits earned	--	7.3
Average GPA	--	3.0
Foreign language:		
Pct. who took 1 or more courses	36.6	45.3
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--



Table 6.--Course-taking behavior of public affairs and social services majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Public affairs/ Social worker	Service person
<b>Health/nursing:</b>		
Pct. who took 1 or more courses	36.4	34.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>History:</b>		
Pct. who took 1 or more courses	75.6	91.0
Avg. no. of courses taken	2.6	2.3
Avg. no. of credits earned	8.1	7.4
Average GPA	2.6	2.5
<b>Letters/literature:</b>		
Pct. who took 1 or more courses	87.0	97.8
Avg. no. of courses taken	4.4	4.5
Avg. no. of credits earned	13.2	13.4
Average GPA	2.5	2.6
<b>Life science:<sup>6</sup></b>		
Pct. who took 1 or more courses	72.4	70.2
Avg. no. of courses taken	2.6	2.2
Avg. no. of credits earned	8.0	7.3
Average GPA	2.2	2.3
<b>Math:</b>		
Pct. who took 1 or more courses	79.3	86.7
Avg. no. of courses taken	2.4	2.6
Avg. no. of credits earned	6.5	8.2
Average GPA	--	2.2
<b>Philosophy/religion/theology:</b>		
Pct. who took 1 or more courses	64.3	62.7
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Physical science:<sup>7</sup></b>		
Pct. who took 1 or more courses	70.3	68.4
Avg. no. of courses taken	2.5	2.2
Avg. no. of credits earned	7.8	7.0
Average GPA	--	2.4

Table 6.--Course-taking behavior of public affairs and social services majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Public affairs/ Social worker	Service person
<b>Psychology:</b>		
Pct. who took 1 or more courses	94.3	89.2
Avg. no. of courses taken	3.6	3.0
Avg. no. of credits earned	11.7	9.6
Average GPA	2.7	2.4
<b>Public affairs:</b>		
Pct. who took 1 or more courses	95.1	97.8
Avg. no. of courses taken	13.2	15.0
Avg. no. of credits earned	41.8	45.9
Average GPA	2.9	3.0
<b>Social science:</b>		
Pct. who took 1 or more courses	96.3	97.8
Avg. no. of courses taken	8.5	7.9
Avg. no. of credits earned	27.1	24.5
Average GPA	2.7	2.5
<b>Vocational/technical:</b>		
Pct. who took 1 or more courses	36.6	24.8
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Other:</b>		
Pct. who took 1 or more courses	86.6	92.4
Avg. no. of courses taken	7.2	5.8
Avg. no. of credits earned	14.2	12.7
Average GPA	2.9	2.9

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 7.--Course-taking behavior of math, computer science, and physical science majors, by principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Computer science	Educator	Clerk	Business & management
Number of majors	30,307	6,468	6,957	6,271
All courses:				
Avg. no. of courses taken <sup>2</sup>	51.7	52.9	51.0	53.5
Avg. no. of credits earned <sup>3</sup>	157.3	151.2	157.2	165.2
Average GPA <sup>4</sup>	2.8	2.9	2.8	2.8
Business and management:				
Pct. who took 1 or more courses <sup>5</sup>	74.5	30.6	75.7	73.3
Avg. no. of courses taken	7.3	3.8	7.8	9.0
Avg. no. of credits earned	23.0	12.1	26.1	29.2
Average GPA	3.0	3.1	2.8	2.9
Computer science:				
Pct. who took 1 or more courses	96.5	83.0	86.2	90.2
Avg. no. of courses taken	10.6	3.6	8.0	6.5
Avg. no. of credits earned	33.2	9.9	24.6	20.7
Average GPA	3.0	3.1	2.9	2.9
Education:				
Pct. who took 1 or more courses	30.0	51.8	40.8	32.1
Avg. no. of courses taken	1.9	7.0	2.4	3.3
Avg. no. of credits earned	4.2	22.0	6.6	8.3
Average GPA	3.4	3.0	3.4	3.5
Engineering:				
Pct. who took 1 or more courses	31.9	24.0	20.8	23.5
Avg. no. of courses taken	4.6	3.5	--	--
Avg. no. of credits earned	13.8	10.0	--	--
Average GPA	2.7	2.8	--	--
Fine and applied arts:				
Pct. who took 1 or more courses	63.1	71.2	69.6	62.5
Avg. no. of courses taken	3.2	2.9	2.8	2.7
Avg. no. of credits earned	7.5	6.6	7.0	7.1
Average GPA	3.1	3.4	3.1	3.0
Foreign language:				
Pct. who took 1 or more courses	38.7	44.7	43.8	51.5
Avg. no. of courses taken	2.9	3.0	2.8	3.4
Avg. no. of credits earned	9.9	10.4	9.7	12.2
Average GPA	3.0	3.0	3.0	3.0

Table 7.--Course-taking behavior of math., computer science, and physical science majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Computer science	Educator	Clerk	Business & management
<b>Health/nursing:</b>				
Pct. who took 1 or more courses	17.5	28.1	14.2	16.2
Avg. no. of courses taken	3.4	1.6	--	--
Avg. no. of credits earned	10.2	3.7	--	--
Average GPA	3.2	3.4	--	--
<b>History:</b>				
Pct. who took 1 or more courses	70.5	77.8	67.2	68.6
Avg. no. of courses taken	2.1	2.2	2.2	2.1
Avg. no. of credits earned	6.6	6.6	7.0	7.0
Average GPA	2.8	2.9	2.8	2.7
<b>Letters/literature:</b>				
Pct. who took 1 or more courses	95.7	92.0	92.2	93.7
Avg. no. of courses taken	4.4	4.1	4.4	3.9
Avg. no. of credits earned	13.5	12.6	13.8	12.2
Average GPA	2.7	2.9	2.7	2.8
<b>Life science:<sup>6</sup></b>				
Pct. who took 1 or more courses	46.8	62.9	59.8	48.4
Avg. no. of courses taken	2.1	3.4	2.9	2.7
Avg. no. of credits earned	6.9	10.7	9.7	8.2
Average GPA	2.9	3.0	2.7	2.6
<b>Math:</b>				
Pct. who took 1 or more courses	98.2	98.5	99.4	96.3
Avg. no. of courses taken	8.1	9.9	7.7	8.6
Avg. no. of credits earned	27.2	31.6	26.5	30.1
Average GPA	2.6	2.8	2.6	2.6
<b>Philosophy/religion/theology:</b>				
Pct. who took 1 or more courses	62.1	61.8	52.7	62.0
Avg. no. of courses taken	2.4	2.9	2.9	2.2
Avg. no. of credits earned	7.7	7.8	9.0	6.7
Average GPA	3.0	3.1	3.0	3.0
<b>Physical science:<sup>7</sup></b>				
Pct. who took 1 or more courses	79.7	92.9	76.0	77.1
Avg. no. of courses taken	4.5	13.7	7.9	7.3
Avg. no. of credits earned	14.1	38.0	24.6	23.4
Average GPA	2.7	2.9	2.6	2.6

Table 7.--Course-taking behavior of math, computer science, and physical science majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Computer science	Educator	Clerk	Business & management
<b>Psychology:</b>				
Pct. who took 1 or more courses	69.0	74.0	77.2	68.4
Avg. no. of courses taken	1.9	2.0	2.0	1.7
Avg. no. of credits earned	5.8	6.3	6.9	5.7
Average GPA	2.9	3.1	3.0	2.9
<b>Public affairs:</b>				
Pct. who took 1 or more courses	8.9	7.6	10.5	6.2
Avg. no. of courses taken	1.5	--	--	--
Avg. no. of credits earned	4.5	--	--	--
Average GPA	3.1	--	--	--
<b>Social science:</b>				
Pct. who took 1 or more courses	93.5	88.5	95.8	92.9
Avg. no. of courses taken	4.3	3.2	4.5	4.9
Avg. no. of credits earned	13.8	9.8	14.3	15.9
Average GPA	2.9	3.1	2.8	2.8
<b>Vocational/technical:</b>				
Pct. who took 1 or more courses	83.0	31.4	62.8	60.6
Avg. no. of courses taken	2.3	2.0	2.2	2.6
Avg. no. of credits earned	7.3	5.7	6.8	7.7
Average GPA	3.0	3.3	3.0	2.9
<b>Other:</b>				
Pct. who took 1 or more courses	80.2	80.6	89.2	78.7
Avg. no. of courses taken	4.0	4.4	3.9	5.0
Avg. no. of credits earned	7.2	6.8	6.8	8.7
Average GPA	3.0	3.1	3.1	3.0

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 7.--Course-taking behavior of math, computer science, and physical science majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Engineer	Tech- nician	Laborer	Sales person
Number of majors	5,650	3,595	2,744	3,174
All courses:				
Avg. no. of courses taken <sup>2</sup>	51.2	51.2	55.8	51.6
Avg. no. of credits earned <sup>3</sup>	152.4	147.2	166.0	157.0
Average GPA <sup>4</sup>	2.8	2.6	2.6	2.6
Business and management:				
Pct. who took 1 or more courses <sup>5</sup>	53.8	31.2	44.2	58.3
Avg. no. of courses taken	5.3	--	--	9.2
Avg. no. of credits earned	17.1	--	--	28.8
Average GPA	3.1	--	--	2.8
Computer science:				
Pct. who took 1 or more courses	92.1	64.3	71.1	83.8
Avg. no. of courses taken	10.5	3.8	6.0	5.8
Avg. no. of credits earned	33.0	10.6	18.4	17.1
Average GPA	3.1	2.6	2.7	2.8
Education:				
Pct. who took 1 or more courses	22.5	25.5	27.4	31.3
Avg. no. of courses taken	--	--	--	--
Avg. no. of credits earned	--	--	--	--
Average GPA	--	--	--	--
Engineering:				
Pct. who took 1 or more courses	52.8	30.5	28.0	22.1
Avg. no. of courses taken	6.8	--	--	--
Avg. no. of credits earned	19.8	--	--	--
Average GPA	2.8	--	--	--
Fine and applied arts:				
Pct. who took 1 or more courses	62.1	67.6	67.7	65.9
Avg. no. of courses taken	2.8	2.6	1.7	2.2
Avg. no. of credits earned	6.5	5.8	4.9	6.4
Average GPA	3.2	3.1	3.3	3.1
Foreign language:				
Pct. who took 1 or more courses	36.7	47.8	40.7	47.8
Avg. no. of courses taken	2.9	3.3	--	--
Avg. no. of credits earned	9.5	10.5	--	--
Average GPA	3.1	2.9	--	--



Table 7.--Course-taking behavior of math, computer science, and physical science majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Engineer	Tech- nician	Laborer	Sales person
Health/nursing:				
Pct. who took 1 or more courses	13.4	17.1	15.9	13.6
Avg. no. of courses taken	--	--	--	--
Avg. no. of credits earned	--	--	--	--
Average GPA	--	--	--	--
History:				
Pct. who took 1 or more courses	62.1	72.2	80.2	65.7
Avg. no. of courses taken	2.3	1.9	3.1	2.3
Avg. no. of credits earned	6.6	5.8	9.5	7.1
Average GPA	2.8	2.9	2.6	2.7
Letters/literature:				
Pct. who took 1 or more courses	88.5	95.0	98.1	93.8
Avg. no. of courses taken	3.7	3.8	5.1	3.8
Avg. no. of credits earned	11.0	10.9	14.0	11.9
Average GPA	2.7	2.8	2.5	2.6
Life science: <sup>6</sup>				
Pct. who took 1 or more courses	35.7	76.2	64.9	50.8
Avg. no. of courses taken	2.1	5.0	3.3	3.4
Avg. no. of credits earned	7.0	16.2	10.2	11.5
Average GPA	2.8	2.7	2.5	--
Math:				
Pct. who took 1 or more courses	95.8	98.6	100.0	98.4
Avg. no. of courses taken	8.3	6.4	7.8	7.7
Avg. no. of credits earned	28.4	21.3	25.4	26.6
Average GPA	2.7	2.2	2.2	2.3
Philosophy/religion/theology:				
Pct. who took 1 or more courses	49.3	65.9	72.7	63.8
Avg. no. of courses taken	3.0	1.8	2.8	2.8
Avg. no. of credits earned	8.5	4.8	7.7	9.0
Average GPA	3.1	2.9	2.8	2.7
Physical science: <sup>7</sup>				
Pct. who took 1 or more courses	86.5	95.0	82.0	79.7
Avg. no. of courses taken	8.1	17.2	13.0	13.5
Avg. no. of credits earned	24.6	51.0	40.5	42.7
Average GPA	2.8	2.6	2.6	2.6

Table 7.--Course-taking behavior of math, computer science, and physical science majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Engineer	Tech- nician	Laborer	Sales person
<b>Psychology:</b>				
Pct. who took 1 or more courses	63.5	64.9	73.3	74.8
Avg. no. of courses taken	1.7	1.9	2.0	1.8
Avg. no. of credits earned	5.4	5.6	6.3	5.5
Average GPA	2.9	2.9	3.0	2.9
<b>Public affairs:</b>				
Pct. who took 1 or more courses	9.3	6.8	18.5	4.5
Avg. no. of courses taken	--	--	--	--
Avg. no. of credits earned	--	--	--	--
Average GPA	--	--	--	--
<b>Social science:</b>				
Pct. who took 1 or more courses	89.1	92.0	98.3	93.9
Avg. no. of courses taken	3.6	3.9	5.5	3.8
Avg. no. of credits earned	11.6	12.2	17.8	12.1
Average GPA	2.9	2.7	2.6	2.6
<b>Vocational/technical:</b>				
Pct. who took 1 or more courses	78.8	34.3	58.6	48.1
Avg. no. of courses taken	2.4	--	--	2.4
Avg. no. of credits earned	7.1	--	--	6.8
Average GPA	3.0	--	--	--
<b>Other:</b>				
Pct. who took 1 or more courses	83.5	83.8	84.6	84.3
Avg. no. of courses taken	4.1	3.8	4.5	4.4
Avg. no. of credits earned	6.0	6.2	8.0	7.2
Average GPA	2.9	2.9	2.9	3.0

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 8.--Course-taking behavior of social science majors, by principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Business & management	Clerk	Sales	Educator
Number of majors	14,062	12,171	7,580	4,248
All courses:				
Avg. no. of courses taken <sup>2</sup>	47.2	47.5	49.1	56.8
Avg. no. of credits earned <sup>3</sup>	134.8	139.2	146.3	162.5
Average GPA <sup>4</sup>	2.6	2.6	2.4	2.8
Business and management:				
Pct. who took 1 or more courses <sup>5</sup>	68.9	59.0	67.5	36.9
Avg. no. of courses taken	4.6	4.3	5.1	--
Avg. no. of credits earned	13.7	13.1	16.9	--
Average GPA	2.6	2.5	2.4	--
Computer science:				
Pct. who took 1 or more courses	47.6	39.1	49.9	29.5
Avg. no. of courses taken	1.7	1.8	1.5	--
Avg. no. of credits earned	4.8	5.7	4.8	--
Average GPA	2.7	2.5	--	--
Education:				
Pct. who took 1 or more courses	35.9	37.2	34.7	61.7
Avg. no. of courses taken	2.3	1.9	--	5.1
Avg. no. of credits earned	5.1	4.2	--	13.4
Average GPA	3.0	2.8	--	3.2
Engineering:				
Pct. who took 1 or more courses	5.8	7.0	11.8	13.3
Avg. no. of courses taken	--	--	--	--
Avg. no. of credits earned	--	--	--	--
Average GPA	--	--	--	--
Fine and applied arts:				
Pct. who took 1 or more courses	74.4	76.5	78.0	66.1
Avg. no. of courses taken	2.4	3.2	3.0	6.3
Avg. no. of credits earned	6.3	8.4	8.0	17.0
Average GPA	2.9	2.8	2.7	2.9
Foreign language:				
Pct. who took 1 or more courses	66.3	71.5	74.4	59.7
Avg. no. of courses taken	3.6	4.2	3.8	4.5
Avg. no. of credits earned	11.2	13.7	12.5	14.9
Average GPA	2.7	2.6	2.4	--

Table 8.--Course-taking behavior of social science majors, by principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Business & management	Clerk	Sales	Educator
<b>Health/nursing:</b>				
Pct. who took 1 or more courses	14.2	19.4	8.7	23.6
Avg. no. of courses taken	--	--	--	--
Avg. no. of credits earned	--	--	--	--
Average GPA	--	--	--	--
<b>History:</b>				
Pct. who took 1 or more courses	84.8	87.5	85.9	94.4
Avg. no. of courses taken	5.5	5.4	5.0	8.4
Avg. no. of credits earned	15.8	16.3	9.9	25.3
Average GPA	2.6	2.7	2.5	2.9
<b>Letters/literature:</b>				
Pct. who took 1 or more courses	96.9	94.5	97.2	96.6
Avg. no. of courses taken	4.3	4.7	4.1	6.0
Avg. no. of credits earned	12.8	14.6	12.9	17.5
Average GPA	2.6	2.7	2.6	2.8
<b>Life science:<sup>6</sup></b>				
Pct. who took 1 or more courses	61.9	58.1	64.5	79.6
Avg. no. of courses taken	2.0	1.9	1.9	2.5
Avg. no. of credits earned	6.2	6.1	6.5	7.3
Average GPA	2.4	2.4	2.1	2.5
<b>Math:</b>				
Pct. who took 1 or more courses	86.8	85.8	89.2	90.7
Avg. no. of courses taken	3.0	3.3	3.3	2.9
Avg. no. of credits earned	9.1	10.3	10.8	8.0
Average GPA	2.4	2.1	1.9	2.4
<b>Philosophy/religion/theology:</b>				
Pct. who took 1 or more courses	69.3	74.0	70.4	63.6
Avg. no. of courses taken	3.0	2.6	3.1	3.0
Avg. no. of credits earned	8.4	8.1	8.9	9.1
Average GPA	2.7	2.7	2.5	--
<b>Physical science:<sup>7</sup></b>				
Pct. who took 1 or more courses	77.2	80.6	78.9	91.9
Avg. no. of courses taken	3.0	2.7	2.5	3.4
Avg. no. of credits earned	8.7	8.1	7.9	10.0
Average GPA	2.4	2.4	2.3	2.6

Table 8.--Course-taking behavior of social science majors, by principal occupation 1 year after graduation: 1987--  
Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation			
	Business & management	Clerk	Sales	Educator
<b>Psychology:</b>				
Pct. who took 1 or more courses	71.0	70.7	78.5	76.6
Avg. no. of courses taken	2.6	2.7	2.2	3.1
Avg. no. of credits earned	8.1	7.9	7.1	8.8
Average GPA	2.6	2.7	2.5	2.6
<b>Public affairs:</b>				
Pct. who took 1 or more courses	22.1	27.0	23.6	29.0
Avg. no. of courses taken	--	3.0	--	--
Avg. no. of credits earned	--	8.7	--	--
Average GPA	--	3.4	--	--
<b>Social science:</b>				
Pct. who took 1 or more courses	99.3	100.0	100.0	100.0
Avg. no. of courses taken	14.1	13.7	14.8	12.6
Avg. no. of credits earned	43.0	42.4	46.9	38.7
Average GPA	2.7	2.8	2.5	2.9
<b>Vocational/technical:</b>				
Pct. who took 1 or more courses	26.9	22.4	26.1	16.7
Avg. no. of courses taken	1.5	--	--	--
Avg. no. of credits earned	4.5	--	--	--
Average GPA	--	--	--	--
<b>Other:</b>				
Pct. who took 1 or more courses	78.8	87.6	87.4	92.2
Avg. no. of courses taken	4.6	4.1	4.9	4.5
Avg. no. of credits earned	8.4	7.2	8.3	7.3
Average GPA	2.6	2.8	2.6	2.9

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation		
	Clerk	Educator	Business & management
Number of majors	14,976	11,124	7,408
All courses:			
Avg. no. of courses taken <sup>2</sup>	55.2	55.8	46.9
Avg. no. of credits earned <sup>3</sup>	153.1	152.6	129.8
Average GPA <sup>4</sup>	2.9	2.9	2.8
Business and management:			
Pct. who took 1 or more courses <sup>5</sup>	44.8	21.9	55.5
Avg. no. of courses taken	2.9	3.3	3.8
Avg. no. of credits earned	7.2	9.0	10.8
Average GPA	2.7	2.7	2.5
Computer science:			
Pct. who took 1 or more courses	32.6	18.7	29.0
Avg. no. of courses taken	1.7	1.4	1.7
Avg. no. of credits earned	4.6	4.0	4.5
Average GPA	2.8	2.8	2.6
Education:			
Pct. who took 1 or more courses	35.0	52.5	46.8
Avg. no. of courses taken	2.9	7.5	2.9
Avg. no. of credits earned	7.0	23.1	7.3
Average GPA	3.0	2.8	3.1
Engineering:			
Pct. who took 1 or more courses	17.9	5.1	3.1
Avg. no. of courses taken	--	--	--
Avg. no. of credits earned	--	--	--
Average GPA	--	--	--
Fine and applied arts:			
Pct. who took 1 or more courses	92.5	87.9	88.5
Avg. no. of courses taken	12.0	13.5	9.9
Avg. no. of credits earned	29.7	27.5	26.3
Average GPA	3.2	3.0	3.0
Foreign language:			
Pct. who took 1 or more courses	69.1	76.9	63.8
Avg. no. of courses taken	6.3	6.3	5.2
Avg. no. of credits earned	20.3	20.9	16.3
Average GPA	2.8	3.2	3.0



Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation		
	Clerk	Educator	Business & management
<b>Health/nursing:</b>			
Pct. who took 1 or more courses	13.2	20.7	20.6
Avg. no. of courses taken	2.1	1.4	--
Avg. no. of credits earned	5.4	3.7	--
Average GPA	2.7	3.1	--
<b>History:</b>			
Pct. who took 1 or more courses	82.0	90.6	83.4
Avg. no. of courses taken	2.6	2.5	2.4
Avg. no. of credits earned	8.0	7.9	7.0
Average GPA	2.9	2.7	2.5
<b>Letters/literature:</b>			
Pct. who took 1 or more courses	100.0	98.6	96.9
Avg. no. of courses taken	9.5	10.2	9.5
Avg. no. of credits earned	28.8	31.7	28.3
Average GPA	2.9	3.0	2.9
<b>Life science:<sup>6</sup></b>			
Pct. who took 1 or more courses	69.5	76.1	71.6
Avg. no. of courses taken	3.0	1.8	2.0
Avg. no. of credits earned	8.0	5.9	6.2
Average GPA	2.2	2.5	2.5
<b>Math:</b>			
Pct. who took 1 or more courses	81.0	77.3	74.6
Avg. no. of courses taken	2.8	1.9	2.3
Avg. no. of credits earned	8.0	5.7	6.0
Average GPA	2.5	3.0	2.2
<b>Philosophy/religion/theology:</b>			
Pct. who took 1 or more courses	81.2	76.0	70.5
Avg. no. of courses taken	7.8	9.3	4.6
Avg. no. of credits earned	24.2	27.6	13.0
Average GPA	2.8	3.1	2.8
<b>Physical science:<sup>7</sup></b>			
Pct. who took 1 or more courses	70.5	60.8	69.1
Avg. no. of courses taken	2.6	2.3	2.1
Avg. no. of credits earned	7.5	6.9	6.2
Average GPA	2.6	2.6	2.5

Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation		
	Clerk	Educator	Business & management
<b>Psychology:</b>			
Pct. who took 1 or more courses	65.6	74.7	78.0
Avg. no. of courses taken	2.0	2.1	2.2
Avg. no. of credits earned	6.2	5.9	6.2
Average GPA	2.7	3.2	2.8
<b>Public affairs:</b>			
Pct. who took 1 or more courses	9.4	9.5	13.0
Avg. no. of courses taken	--	--	--
Avg. no. of credits earned	--	--	--
Average GPA	--	--	--
<b>Social science:</b>			
Pct. who took 1 or more courses	94.3	94.6	94.4
Avg. no. of courses taken	4.0	4.4	5.0
Avg. no. of credits earned	12.8	12.9	14.2
Average GPA	2.8	3.0	2.6
<b>Vocational/technical:</b>			
Pct. who took 1 or more courses	33.1	17.8	22.5
Avg. no. of courses taken	2.0	1.9	--
Avg. no. of credits earned	5.7	5.3	--
Average GPA	2.9	3.0	--
<b>Other:</b>			
Pct. who took 1 or more courses	87.9	85.1	77.3
Avg. no. of courses taken	7.1	4.7	5.7
Avg. no. of credits earned	15.2	7.6	12.0
Average GPA	2.9	2.6	2.9

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Sales person	Writer/artist
Number of majors	6,576	4,950
All courses:		
Avg. no. of courses taken <sup>2</sup>	52.4	57.8
Avg. no. of credits earned <sup>3</sup>	146.4	151.5
Average GPA <sup>4</sup>	2.7	2.8
Business and management:		
Pct. who took 1 or more courses <sup>5</sup>	39.3	37.0
Avg. no. of courses taken	3.8	--
Avg. no. of credits earned	12.0	--
Average GPA	2.3	--
Computer science:		
Pct. who took 1 or more courses	32.0	25.7
Avg. no. of courses taken	1.7	--
Avg. no. of credits earned	5.0	--
Average GPA	2.7	--
Education:		
Pct. who took 1 or more courses	39.6	42.1
Avg. no. of courses taken	2.2	--
Avg. no. of credits earned	5.0	--
Average GPA	3.1	--
Engineering:		
Pct. who took 1 or more courses	3.6	17.5
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Fine and applied arts:		
Pct. who took 1 or more courses	86.7	97.0
Avg. no. of courses taken	17.1	31.5
Avg. no. of credits earned	40.7	75.8
Average GPA	2.9	3.1
Foreign language:		
Pct. who took 1 or more courses	58.1	57.2
Avg. no. of courses taken	6.3	3.7
Avg. no. of credits earned	19.9	12.5
Average GPA	2.5	2.7

Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Sales person	Writer/artist
Health/nursing:		
Pct. who took 1 or more courses	24.3	12.8
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
History:		
Pct. who took 1 or more courses	74.3	74.2
Avg. no. of courses taken	2.9	3.2
Avg. no. of credits earned	9.4	9.2
Average GPA	2.3	2.6
Letters/literature:		
Pct. who took 1 or more courses	91.6	95.0
Avg. no. of courses taken	10.0	6.1
Avg. no. of credits earned	30.0	18.0
Average GPA	2.7	2.8
Life science: <sup>6</sup>		
Pct. who took 1 or more courses	54.1	51.7
Avg. no. of courses taken	2.2	--
Avg. no. of credits earned	7.3	--
Average GPA	2.1	--
Math:		
Pct. who took 1 or more courses	68.2	62.9
Avg. no. of courses taken	2.9	2.4
Avg. no. of credits earned	9.9	7.1
Average GPA	2.2	2.1
Philosophy/religion/theology:		
Pct. who took 1 or more courses	76.7	65.4
Avg. no. of courses taken	3.2	2.0
Avg. no. of credits earned	9.6	5.8
Average GPA	2.6	2.4
Physical science: <sup>7</sup>		
Pct. who took 1 or more courses	65.9	65.7
Avg. no. of courses taken	2.7	2.0
Avg. no. of credits earned	7.8	5.6
Average GPA	2.1	2.3

Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Sales person	Writer/artist
<b>Psychology:</b>		
Pct. who took 1 or more courses	77.4	71.9
Avg. no. of courses taken	2.2	2.1
Avg. no. of credits earned	6.7	6.5
Average GPA	2.5	2.4
<b>Public affairs:</b>		
Pct. who took 1 or more courses	10.2	10.0
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Social science:</b>		
Pct. who took 1 or more courses	94.7	90.1
Avg. no. of courses taken	3.8	3.3
Avg. no. of credits earned	12.6	10.3
Average GPA	2.5	2.6
<b>Vocational/technical:</b>		
Pct. who took 1 or more courses	30.4	34.4
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Other:</b>		
Pct. who took 1 or more courses	80.8	80.2
Avg. no. of courses taken	6.6	3.5
Avg. no. of credits earned	14.2	6.0
Average GPA	2.6	3.1

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Communications	Service person
Number of majors	3,639	3,438
All courses:		
Avg. no. of courses taken <sup>2</sup>	47.6	52.7
Avg. no. of credits earned <sup>3</sup>	140.8	142.3
Average GPA <sup>4</sup>	2.8	2.6
Business and management:		
Pct. who took 1 or more courses <sup>5</sup>	42.5	26.7
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Computer science:		
Pct. who took 1 or more courses	38.4	32.7
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Education:		
Pct. who took 1 or more courses	39.1	39.5
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Engineering:		
Pct. who took 1 or more courses	8.5	7.0
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Fine and applied arts:		
Pct. who took 1 or more courses	91.2	84.8
Avg. no. of courses taken	11.8	18.9
Avg. no. of credits earned	32.7	45.2
Average GPA	3.0	3.1
Foreign language:		
Pct. who took 1 or more courses	69.0	70.8
Avg. no. of courses taken	3.9	5.7
Avg. no. of credits earned	14.1	17.8
Average GPA	2.7	2.4



Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Communications	Service person
<b>Health/nursing:</b>		
Pct. who took 1 or more courses	13.5	6.9
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>History:</b>		
Pct. who took 1 or more courses	81.7	85.9
Avg. no. of courses taken	2.4	2.2
Avg. no. of credits earned	7.6	6.5
Average GPA	2.8	2.6
<b>Letters/literature:</b>		
Pct. who took 1 or more courses	100.0	97.9
Avg. no. of courses taken	10.9	9.7
Avg. no. of credits earned	33.4	28.7
Average GPA	2.9	2.7
<b>Life science:<sup>6</sup></b>		
Pct. who took 1 or more courses	66.3	71.1
Avg. no. of courses taken	1.8	1.9
Avg. no. of credits earned	6.0	5.5
Average GPA	2.4	1.8
<b>Math:</b>		
Pct. who took 1 or more courses	70.3	66.5
Avg. no. of courses taken	1.9	3.1
Avg. no. of credits earned	6.4	9.1
Average GPA	2.6	1.9
<b>Philosophy/religion/theology:</b>		
Pct. who took 1 or more courses	68.7	80.7
Avg. no. of courses taken	3.1	3.4
Avg. no. of credits earned	9.1	9.6
Average GPA	2.8	2.4
<b>Physical science:<sup>7</sup></b>		
Pct. who took 1 or more courses	64.6	67.5
Avg. no. of courses taken	1.9	2.7
Avg. no. of credits earned	6.3	8.6
Average GPA	2.6	2.4

Table 9.--Course-taking behavior of humanities majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Communications	Service person
<b>Psychology:</b>		
Pct. who took 1 or more courses	76.7	76.2
Avg. no. of courses taken	2.2	2.3
Avg. no. of credits earned	6.7	7.1
Average GPA	2.6	2.3
<b>Public affairs:</b>		
Pct. who took 1 or more courses	5.1	13.9
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Social science:</b>		
Pct. who took 1 or more courses	92.4	89.8
Avg. no. of courses taken	3.9	4.7
Avg. no. of credits earned	13.0	13.6
Average GPA	2.7	2.3
<b>Vocational/technical:</b>		
Pct. who took 1 or more courses	25.1	32.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>Other:</b>		
Pct. who took 1 or more courses	93.1	76.6
Avg. no. of courses taken	6.9	4.6
Avg. no. of credits earned	17.0	8.1
Average GPA	3.0	2.8

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Table 10.--Course-taking behavior of psychology majors, by  
principal occupation 1 year after graduation:  
1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Business & management	Clerk
Number of majors	4,886	5,393
All courses:		
Avg. no. of courses taken <sup>2</sup>	47.9	46.2
Avg. no. of credits earned <sup>3</sup>	132.3	134.8
Average GPA <sup>4</sup>	2.7	2.8
Business and management:		
Pct. who took 1 or more courses <sup>5</sup>	55.2	41.8
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Computer science:		
Pct. who took 1 or more courses	45.8	41.6
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Education:		
Pct. who took 1 or more courses	49.1	52.2
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Engineering:		
Pct. who took 1 or more courses	0.2	4.1
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Fine and applied arts:		
Pct. who took 1 or more courses	84.0	79.5
Avg. no. of courses taken	2.9	5.7
Avg. no. of credits earned	6.7	13.0
Average GPA	3.2	3.0
Foreign language:		
Pct. who took 1 or more courses	49.2	54.2
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--

Table 10.--Course-taking behavior of psychology majors, by  
principal occupation 1 year after graduation:  
1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Business & management	Clerk
<b>Health/nursing:</b>		
Pct. who took 1 or more courses	16.9	40.9
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
<b>History:</b>		
Pct. who took 1 or more courses	78.4	83.4
Avg. no. of courses taken	2.7	2.1
Avg. no. of credits earned	7.9	6.6
Average GPA	2.6	2.6
<b>Letters/literature:</b>		
Pct. who took 1 or more courses	84.6	96.1
Avg. no. of courses taken	5.1	4.1
Avg. no. of credits earned	14.9	12.7
Average GPA	2.5	2.8
<b>Life science:<sup>6</sup></b>		
Pct. who took 1 or more courses	71.5	66.8
Avg. no. of courses taken	2.0	2.5
Avg. no. of credits earned	6.5	8.3
Average GPA	2.6	2.5
<b>Math:</b>		
Pct. who took 1 or more courses	87.4	83.4
Avg. no. of courses taken	2.7	3.0
Avg. no. of credits earned	7.9	9.7
Average GPA	2.4	2.4
<b>Philosophy/religion/theology:</b>		
Pct. who took 1 or more courses	75.1	72.7
Avg. no. of courses taken	2.9	3.6
Avg. no. of credits earned	8.7	10.7
Average GPA	2.9	2.8
<b>Physical science:<sup>7</sup></b>		
Pct. who took 1 or more courses	67.7	68.1
Avg. no. of courses taken	1.8	2.6
Avg. no. of credits earned	5.4	7.8
Average GPA	2.3	2.5

Table 10.--Course-taking behavior of psychology majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation	
	Business & management	Clerk
Psychology:		
Pct. who took 1 or more courses	93.2	98.1
Avg. no. of courses taken	13.5	12.4
Avg. no. of credits earned	40.1	38.8
Average GPA	2.9	2.9
Public affairs:		
Pct. who took 1 or more courses	27.9	27.9
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Social science:		
Pct. who took 1 or more courses	97.6	96.1
Avg. no. of courses taken	7.9	5.0
Avg. no. of credits earned	21.5	15.1
Average GPA	2.7	2.9
Vocational/technical:		
Pct. who took 1 or more courses	11.9	28.5
Avg. no. of courses taken	--	--
Avg. no. of credits earned	--	--
Average GPA	--	--
Other:		
Pct. who took 1 or more courses	88.5	83.1
Avg. no. of courses taken	4.8	3.7
Avg. no. of credits earned	9.6	7.2
Average GPA	3.0	2.8

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

## Methodology and Technical Notes

### The Survey

The data in this E.D. TAB are based on one or more transcripts collected for each baccalaureate degree recipient who was part of the 1987 Recent College Graduates Study (RCGS) sample. The RCGS collects data on a nationally representative sample of college graduates (both bachelor's and master's degree recipients) to obtain information on their educational and occupational experiences approximately 1 year after graduation. The RCGS also responds to a congressional mandate to determine the availability of qualified teachers for the nation's elementary and secondary schools. This study has been conducted six times in the past (1976, 1978, 1981, 1985, 1987, and 1991). The 1987 RCGS is unique among the other RCGSs in that it collected postsecondary transcripts on eligible bachelor's degree recipients in the 1987 sample. The data from these transcripts form the primary basis of this E.D. TAB.

To select a nationally representative sample of college graduates, each of the RCGSs used a two-stage sample design. In the first stage of the 1987 RCGS sample selection all institutions which awarded a bachelor's or master's degree during the 1985-86 academic year were stratified by control (public or private) and by the number or percent of degrees they offered in education. A sample of 400 such institutions was selected with probability proportional to size (the number of bachelor's and master's degrees awarded). These institutions were then contacted for a list of their graduates sorted by major field of study. A sample of these graduates was then selected with the sampling interval adjusted to oversample certain major fields of study (i.e., education; math, computer science, and physical science; and the humanities).

To collect the survey data, questionnaires were mailed to each of the graduates in the sample in September 1987. Two additional mailings were undertaken to collect data from nonrespondents. Remaining nonrespondents were subsequently contacted by phone and data were collected through a telephone interview that followed the form and sequence of the mailed questionnaire. In collecting the transcript data both the graduating institution and institutions previously attended by the eligible bachelor's degree recipients were contacted. The first requests for transcripts were made to the graduating institutions at the beginning of May 1987. Transcripts from transfer institutions were requested beginning in October 1987. Transcripts were requested for all sampled eligible bachelor's degree recipients, regardless of their response status on the questionnaire survey.



## **Data File Organization**

The 1987 RCG transcript data files consist of information on the course-taking behavior of bachelor's degree graduates at the following four levels: student, transcript, term, and course levels. For each student record there are one or more transcript records in the transcript file for each institution the graduate attended. For each transcript record in the transcript file there are one or more terms in the term file. Finally, for each term in the term file there are one or more courses in the course file. Physically, each type of record is self-contained, but can be linked to other types of records by the common identifying information contained in each type of record. The four levels of data are hierarchically organized. That is, the transcript file can be nested within the student file, the term file can be nested within the transcript file, and the course records nested within the term file.

## **Data Reliability**

Data reliability is typically discussed in terms of the following three concepts: response rates, nonsampling error, and sampling error. Estimates produced using data from the transcript file are subject to two types of error, sampling and nonsampling. Sampling errors occur because the data are collected from a sample rather than a census of the population. Nonsampling errors are errors made in the collection and processing of data. Each of the three measures of data reliability are discussed below.

### *Response Rates*

Of the 400 graduating institutions contacted for lists of their graduates, all but 4 were found to be within the sample frame, 375 provided such lists for an institution response rate to the first stage of data collection of 95 percent. Two of these 375 institutions granted only master's degrees and were excluded from the transcript collection effort. Five of the 373 institutions eligible for transcript collection refused to supply transcripts and 7 did not respond to the transcript request. The remaining institutions, 361, of the 373 contacted in-scope institutions provided transcript data. The institution response rate was 97 percent. Thus 91 percent of the original sample of institutions provided transcript data.

On a student basis there were 19,827 bachelor's degree recipients in the sample, of which 1,002 were found to be ineligible (did not graduate during the specified time period from the given institution, were deceased, were living abroad, etc.). Of the

remaining 18,825 graduates, 525 refused to release their transcripts, 500 attended an institution which refused to provide transcripts, and 823 were associated with institutions that did not respond to the request for transcripts. Transcripts were received from the graduating institution for the remaining 16,977 bachelor's degree recipients for an unweighted response rate of 90.2 percent. The response rate for transcripts from previously attended institutions (or transfer institutions) was 74.6 percent. However, courses that were accepted for credit toward the degree at the graduating institution were included on the graduating institution's transcript.

### *Nonsampling Errors*

Nonsampling error is the term used to describe variations in the estimates which may be caused by coverage, data collection, processing, and reporting procedures. In general, the sources of nonsampling errors are typically problems like unit and item nonresponse, the differences in respondents' interpretation of the meaning of the questions, response differences related to the particular time the survey was conducted, and mistakes in data preparation. One possible source of nonsampling error for the 1987 RCG transcript study may be the nonresponse bias produced by those graduates who refused to permit access to their transcripts.

In general, it is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. One possible source of nonsampling error for the 1987 RCG transcript study may be the nonresponse bias produced by those graduates who refused to permit access to their transcripts. Assuming that the registrar provided accurate transcript information, a second source of nonsampling error for the transcript file might be in the data entry of the transcript data. However, efforts were made to prevent this from occurring. Data entry was controlled by a data entry program designed specifically for the transcripts. Alphabetic values were keyed directly from the transcripts into designated alphabetic fields. The data entry programs prevented out-of-range entries, and all keyed data were key-verified by a different operator.

### *Sampling Error*

The sample of bachelor's degree recipients selected for the RCGS, and hence their transcripts, is just one of many possible samples that could have been selected. Therefore, estimates produced from the transcript sample may differ from estimates that would have been produced from other samples. This type of variability is called sampling error because it arises from using a sample of bachelor's degree recipients' transcripts rather than the transcripts of all bachelor's degree recipients. The standard error is a measure of the variability due to sampling when

estimating a parameter. The sampling standard errors for all of the statistics shown in this report have been estimated by a procedure called Ultimate Cluster Taylor Series Approximation. This procedure takes into account the complexities of the sample design, resulting in significantly higher sampling errors than those that would have been calculated using formulas based on the assumption of simple random sampling. It indicates how much variance there is in the population of possible estimates of a parameter for a given sample size. Standard errors can be used as a measure of the precision expected from a particular sample. The probability that an estimate from a sample would differ from the value of the parameter from a complete census by less than one standard error is about 0.68. The chances that the difference would be less than two standard errors is 0.95.

Standard errors for the estimates in table 2 are provided in appendix A. The estimates of totals, means, and percentages in this E.D. TAB were produced using SAS (Statistical Analysis System). The standard errors were produced using the PC software package SUDAAN. Standard errors for the estimates in the other tables may be obtained by contacting the National Center for Education Statistics. Standard errors can be used to produce confidence intervals. For example, the estimated average number of credits earned by health majors who entered health care was 64 credits. This figure has an estimated standard error of 1.8 credits. Therefore, the estimated 95 percent confidence interval is approximately 60.4 to 67.6 credits. All differences cited in the text of this report are significant at the 0.05 level of significance. Where applicable, Bonferroni adjustments for multiple comparisons were used.

### Definition of Terms and Variable Coding

The transcript file contains records on 13,580 bachelor's degree recipients who took a total of 923,037 courses. These courses are not simply the courses for which the graduate received credit from his or her graduating institution but all courses taken by the graduate during his or her collegiate career. What constituted a course varied among transcripts. While in most cases a course represented a number of classes in a particular field of instruction for which a graduate received credit toward graduation at a given institution, in some cases, the graduate received credit by transferring courses from another institution or by taking an exam. While every effort was made to code courses into one of 78 program areas, a small proportion of courses could not be placed into one of these 78 program areas because of missing course titles. Nonetheless, if other information about the course was present, such as grade received or credits earned, this information was placed on the file.

For purposes of this report, these 78 program categories have been placed into one of 18 program areas. In determining the 18 program areas, several experts, knowledgeable of the NCES' Classification of Instructional Programs, were consulted for their advice. The 18 program areas and the programs contained in each are as follows:

Business and management:

- 060 business and management
- 061 accounting
- 062 banking and finance
- 070 business administrative support
- 080 marketing and distribution

Computer science:

- 110 computer and information sciences
- 111 computer programming

Education:

- 130 education
- 131 adult and continuing education
- 132 elementary education
- 133 junior and middle school education
- 134 pre-elementary education
- 135 secondary education

Engineering:

- 140 engineering
- 141 civil engineering
- 142 electrical, electronics, and communications engineering
- 143 mechanical engineering
- 150 engineering related technologies

Fine and applied arts:

- 500 visual and performing arts
- 501 dance
- 502 fine arts
- 503 music

Foreign languages:

- 160 foreign languages
- 161 German
- 162 French
- 163 Spanish

Health/nursing:

- 170 allied health
- 171 practical nursing
- 180 health sciences
- 181 nursing

History:

454 history

Letters/literature:

230 letters  
231 composition  
232 American literature  
233 English literature

Life sciences:

260 life sciences\*

Mathematics:

270 mathematics  
271 calculus

Philosophy/religion/theology:

380 philosophy and religion  
390 theology

Physical science:

400 physical sciences  
401 chemistry  
402 geological sciences  
403 physics  
410 science technologies

Psychology:

420 psychology

Public affairs and social services:

310 parks and recreation  
410 protective services  
440 public affairs  
441 social work

- 
- \* Life science includes: general biology, biochemistry and biophysics, botany, cell and molecular biology, microbiology/bacteriology, zoology, and miscellaneous biological specializations (e.g., anatomy, ecology).

**Social science:**

- 450 social sciences
- 451 anthropology
- 452 economics
- 453 geography
- 455 political science and government
- 456 sociology

**Vocational/technical:**

- 071 secretarial and related programs
- 100 communications technologies
- 112 data processing
- 120 consumer, personal, and miscellaneous services
- 190 home economics
- 200 vocational home economics
- 450 construction trades
- 470 mechanics and repairers
- 480 precision production
- 490 transportation and material moving

**Other:**

- 000 uncodable
- 010 agribusiness and agricultural production
- 020 agricultural sciences
- 030 renewable natural resources
- 040 architecture and environmental design
- 050 area and ethnic studies
- 090 communications
- 091 journalism
- 220 law
- 250 library and archival sciences
- 280 military sciences
- 320 basic skills

The graduate's major field of study, as reported on the transcripts, was designated DEGCOD1 on the student member of the transcript file. For both the graduate questionnaire file and the transcript file graduates' major fields of study are coded into one of 40 program areas (see appendix B). If that variable had a missing value and the variable XQ3B, the graduate's response to the major field of study item on the student questionnaire file, had a legitimate value, then the XQ3B value was used.

The occupational variable, XQ19B, came from the student questionnaire file. Students were asked for their principal job (the job for which the respondent earned most of his/her income) during the week of April 27, 1987, their type of business, and their duties. This information was then coded into one of 15 occupational categories. Appendix C provides both Census and SOC codes which correspond to the 15 occupational codes used in this report.

The transcript file contains two weights. The first weight, ADJTWT, is similar to the weight variable on the student questionnaire file in that it is the inverse of the probability of selection. However, it is adjusted for transcript nonresponse rather than questionnaire nonresponse. It takes into consideration that there are transcripts on the transcript file for whom there are no students on the student questionnaire file. The second weight, ADJQWT, is used when information on both the student questionnaire and transcript files are used together. Just as there are transcripts on the transcript file with no associated student records on the student questionnaire file, there are also students on the student questionnaire file with no transcripts on the transcript file. A merge of both files will produce a smaller set of cases than exist on either file and hence, requires a separate set of weights to adjust for both student and transcript nonresponse.

### **Computation of Estimates**

For a given major and occupation four estimates are provided for each program area. The following describes how each estimate was calculated. While all estimates are weighted estimates, the following discussion ignores that complication.

#### *Proportion who took one or more courses:*

A variable was created for each program area. If the graduate took (but not necessarily completed with a passing grade) one or more courses in that program, then the variable was assigned a value of 1. Otherwise, the variable was assigned a value of 0. The average value of this variable was then calculated across all graduates with the given major and occupation to determine the proportion who took one or more courses in the given program area. Since a small proportion of courses had missing course titles, they could not be included in this analysis.

#### *Average number of courses taken:*

For those graduates who had taken at least one course within a given program area, the number of courses they took was summed and divided by the number of graduates to obtain an average. As in the calculation of the proportion who took one or more courses, the computation of the average number taken includes courses for which the grade may be zero (F or E) or missing and/or for which course credit may be zero or missing.



#### *Average number of credits earned:*

For those graduates who had taken at least one course within a given program area and who had received a positive amount of credit, the number of credits they received was summed and the total was divided by the number of graduates. Included in this sum were credits for courses for which the grade was missing.

#### *Average GPA:*

A grade point average was calculated for each student who took one or more courses within a given program area. To obtain the grade point average the graduate had to have received a grade between zero and 4 (a standardized four point scale was used regardless of the scale used on an individual transcript) inclusive and a positive number of credit hours. The numerator is the sum of the products of adjusted credits and standardized grade for the relevant courses. The denominator is the sum of adjusted credits for the same courses. The average of the graduates' GPAs within the program area was then computed.

#### **Acknowledgments**

This E.D. TAB was prepared under the direction of Roslyn Korb, Acting Branch Chief, Cross-Sectional Studies Branch. In addition to a thorough review of the final product, the conception and outline of this E.D. TAB represent her contribution.

The author wishes to thank the following individuals for reviewing this E.D. TAB and providing many helpful comments and suggestions: Pam Frugoli, Occupational Information Systems Specialist, National Occupational Information Coordinating Committee; Doug Braddock, Division of Occupational Outlook, Bureau of Labor Statistics, Department of Labor; Judith Carpenter, Elementary and Secondary Education Statistics Division, NCES; Jim Houser, Data Development Division, NCES, and Sue Ahmed, Statistical Standards and Methodology Division, NCES. A special thanks also goes to Roz Korb and Bob Morgan of OERI, and to Jerry Malitz of NCES for their suggestions concerning the grouping of programs into the 18 program areas. Thanks goes to Michael Moll and Brian Taylor of Pinkerton Computer Consultants for producing the standard errors for this report.

#### **For More Information**

For more information about this E.D. TAB, contact Peter Stowe, Postsecondary Education Statistics Division, National Center for Education Statistics, U.S. Department of Education, 555 New Jersey Avenue NW, Washington, DC 20208, telephone (202) 219-1363.



Appendix A  
Standard Errors Table

Table A1.--Standard errors of estimates of the course-taking behavior of business and management majors, by principal occupation 1 year after graduation: 1987

Program area and course-taking characteristics <sup>1</sup>	Principal occupation				
	Business & manage- ment	Comp. sci.	Sales	Clerk	Labor
Unweighted sample size	964	86	325	327	61
All courses:					
Avg. no. of courses taken <sup>2</sup>	0.69	1.67	0.84	0.87	2.75
Avg. no. of credits earned <sup>3</sup>	2.53	6.15	2.85	3.67	8.22
Average GPA <sup>4</sup>	0.02	0.06	0.03	0.03	0.06
Business and management:					
Pct. who took 1 or more courses <sup>5</sup>	0.54	1.20	0.42	0.31	1.55
Avg. no. of courses taken	0.37	0.84	0.47	0.44	0.99
Avg. no. of credits earned	1.22	3.00	1.60	1.73	3.29
Average GPA	0.02	0.07	0.04	0.03	0.07
Computer science:					
Pct. who took 1 or more courses	2.30	5.17	3.21	3.01	6.94
Avg. no. of courses taken	0.09	0.59	0.15	0.16	0.53
Avg. no. of credits earned	0.31	2.20	0.44	0.50	1.22
Average GPA	0.04	0.10	0.07	0.07	0.17
Education:					
Pct. who took 1 or more courses	1.91	4.95	2.98	2.65	7.11
Avg. no. of courses taken	0.11	--	0.12	0.26	--
Avg. no. of credits earned	0.28	--	0.30	0.81	--
Average GPA	0.06	--	0.10	0.09	--
Engineering:					
Pct. who took 1 or more courses	1.16	4.17	2.02	1.53	6.33
Avg. no. of courses taken	0.28	--	0.89	--	--
Avg. no. of credits earned	0.90	--	2.54	--	--
Average GPA	0.11	--	0.17	--	--
Fine and applied arts:					
Pct. who took 1 or more courses	2.20	5.56	2.92	2.99	6.63
Avg. no. of courses taken	0.13	0.16	0.13	0.14	0.21
Avg. no. of credits earned	0.26	0.52	0.33	0.34	0.44
Average GPA	0.04	0.15	0.06	0.07	0.14
Foreign language:					
Pct. who took 1 or more courses	1.89	4.50	2.80	3.12	6.41
Avg. no. of courses taken	0.13	--	0.27	0.17	--
Avg. no. of credits earned	0.45	--	0.93	0.62	--
Average GPA	0.06	--	0.12	0.10	--

Table A1.--Standard errors of estimates of the course-taking behavior of business and management majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation				
	Business & manage- ment	Comp. sci.	Sales	Clerk	Labor
<b>Health/nursing:</b>					
Pct. who took 1 or more courses	1.75	4.26	2.45	2.93	4.71
Avg. no. of courses taken	0.11	1.42	0.24	0.13	0.22
Avg. no. of credits earned	0.41	4.66	0.71	0.40	0.81
Average GPA	0.07	0.21	0.10	0.09	0.28
<b>History:</b>					
Pct. who took 1 or more courses	1.77	5.25	2.49	2.73	5.71
Avg. no. of courses taken	0.06	0.13	0.09	0.08	0.23
Avg. no. of credits earned	0.19	0.52	0.28	0.29	0.71
Average GPA	0.04	0.12	0.06	0.06	0.10
<b>Letters/literature:</b>					
Pct. who took 1 or more courses	0.93	2.71	0.66	1.18	2.87
Avg. no. of courses taken	0.11	0.27	0.16	0.17	0.41
Avg. no. of credits earned	0.33	1.03	0.47	0.57	1.17
Average GPA	0.03	0.10	0.04	0.05	0.11
<b>Life science:<sup>6</sup></b>					
Pct. who took 1 or more courses	2.05	5.88	3.06	3.16	6.00
Avg. no. of courses taken	0.07	0.15	0.12	0.10	0.26
Avg. no. of credits earned	0.22	0.63	0.31	0.34	0.98
Average GPA	0.05	0.18	0.07	0.06	0.12
<b>Math:</b>					
Pct. who took 1 or more courses	0.95	3.24	1.62	1.03	2.59
Avg. no. of courses taken	0.10	0.38	0.14	0.15	0.43
Avg. no. of credits earned	0.35	1.24	0.46	0.51	1.17
Average GPA	0.03	0.10	0.05	0.05	0.10
<b>Philosophy/religion/theology:</b>					
Pct. who took 1 or more courses	2.34	5.81	3.11	3.29	7.25
Avg. no. of courses taken	0.14	0.30	0.17	0.20	0.41
Avg. no. of credits earned	0.41	1.10	0.52	0.54	0.94
Average GPA	0.04	0.11	0.07	0.06	0.13
<b>Physical science:<sup>7</sup></b>					
Pct. who took 1 or more courses	1.86	5.77	2.81	3.11	6.12
Avg. no. of courses taken	0.09	0.35	0.13	0.13	0.20
Avg. no. of credits earned	0.25	1.12	0.41	0.42	0.57
Average GPA	0.04	0.13	0.06	0.07	0.14

Table A1.--Standard errors of estimates of the course-taking behavior of business and management majors, by principal occupation 1 year after graduation: 1987--Continued

Program area and course-taking characteristics <sup>1</sup>	Principal occupation				
	Business & manage- ment	Comp. sci.	Sales	Clerk	Labor
<b>Psychology:</b>					
Pct. who took 1 or more courses	1.72	4.97	2.55	2.55	4.45
Avg. no. of courses taken	0.07	0.12	0.10	0.09	0.26
Avg. no. of credits earned	0.21	0.52	0.29	0.27	0.72
Average GPA	0.04	0.10	0.06	0.05	0.12
<b>Public affairs:</b>					
Pct. who took 1 or more courses	1.64	3.77	1.95	2.35	4.72
Avg. no. of courses taken	0.12	--	0.12	0.16	--
Avg. no. of credits earned	0.33	--	0.44	0.46	--
Average GPA	0.08	--	0.14	0.14	--
<b>Social science:</b>					
Pct. who took 1 or more courses	0.41	2.22	0.91	0.98	0.00
Avg. no. of courses taken	0.15	0.35	0.21	0.22	0.42
Avg. no. of credits earned	0.58	1.13	0.70	0.86	1.41
Average GPA	0.03	0.09	0.04	0.04	0.09
<b>Vocational/technical:</b>					
Pct. who took 1 or more courses	2.12	5.72	3.13	3.18	6.39
Avg. no. of courses taken	0.20	0.17	0.22	0.21	--
Avg. no. of credits earned	0.58	0.58	0.71	0.69	--
Average GPA	0.06	0.14	0.08	0.09	--
<b>Other:</b>					
Pct. who took 1 or more courses	1.52	3.75	1.98	2.24	4.60
Avg. no. of courses taken	0.14	0.34	0.21	0.21	0.74
Avg. no. of credits earned	0.33	0.77	0.53	0.40	1.68
Average GPA	0.04	0.11	0.05	0.06	0.13

--Too few cases for reliable estimates. The number of unweighted cases upon which an estimate would be based is less than 30, the number required to meet NCES statistical standards.

<sup>1</sup>See the technical notes which discuss how the course-taking characteristic variables were constructed and how the program areas were defined.

<sup>2</sup>This is an abbreviation for: Average number of courses taken. See the methodology section for a description of how this variable was calculated.

<sup>3</sup>This is an abbreviation for: Average number of credit hours earned. See the methodology section for a description of how this variable was calculated.

<sup>4</sup>See the methodology section for an explanation of how this variable was calculated.

<sup>5</sup>This is an abbreviation for: Percent who took 1 or more courses. See the methodology section for a description of how this variable was calculated.

<sup>6</sup>The methodology section includes a list of program areas associated with life science.

<sup>7</sup>Physical science includes geological sciences, chemistry, physics, and other physical sciences such as astronomy, atmospheric sciences, metallurgy, oceanography.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Recent College Graduates Transcript Study.

Appendix B  
Major fields of study, by two-digit  
Classification of Instructional Program codes

Major fields of study, by two-digit  
Classification of Instructional Program codes

<u>Codes</u>	<u>Description</u>
01	Agriculture and agricultural production
02	Agricultural sciences
03	Renewable natural resources
04	Architecture and environmental design
05	Area and ethnic studies
06	Business and management
07	Business administrative support
08	Marketing and distribution
09	Communications
10	Communications technologies
11	Computer and information sciences
12	Consumer, personal, and miscellaneous services
13	Education
14	Engineering
15	Engineering-related technologies
16	Foreign languages
17	Allied health
18	Health sciences
19	Home economics
20	Vocational home economics
22	Law
23	Letters
25	Library and archival sciences
26	Life sciences
27	Mathematics
28	Military sciences
31	Parks and recreation
38	Philosophy and religion
39	Theology
40	Physical sciences
41	Science technologies
42	Psychology
43	Protective services
44	Public affairs
45	Social sciences
46	Construction trades
47	Mechanics and repairers
48	Precision production
49	Transportation and materials moving
50	Visual and performing arts

The above have been grouped into the following 10 major fields for this report:

- |     |  |                        |
|-----|--|------------------------|
| 1.  | Business and management:               | 6, 7, and 8            |
| 2.  | Education:                             | 13                     |
| 3.  | Engineering:                           | 14 and 15              |
| 4.  | Health care:                           | 17 and 18              |
| 5.  | Public affairs/social services:        | 31, 43, and 44         |
| 6.  | Biological and life sciences:          | 26                     |
| 7.  | Math, computer, and physical sciences: | 11, 27, 40, and 41     |
| 8.  | Social science:                        | 45                     |
| 9.  | Humanities:                            | 16, 23, 38, 39, and 50 |
| 10. | Psychology:                            | 10                     |



Appendix C  
Occupational Codes

The 1987 Recent College Graduates (RCG) Survey's Occupational Codes used in this E.D. TAB.

<u>Occupational Title</u>	<u>RCG Code</u>	<u>Census Code</u>	<u>SOC Code</u>
Business and management	01	003-037	11-14
Education	02	113-159,163	22-24
Engineering	03	044-059	16
Health occupations	04	084-089,095-106	26-30,36
Public affairs/ social services	05	174-177	19-20
Biological sciences	06	078,079,083	18,55-58
Computer specialists	07	064,065	171
Communications	08	195-198	33
Fine arts	09	183-194	32,34
Technicians	10	203-235	37-39
Clerical	11	303-389	45-47
Laborers	12	503-599,613-699 703-799,803-889	60,61,63-65 65,67-69, 71-78, 81-83,85-87, 611,615,821
Sales	13	243-285	40-44
Service	14	403-469	50-52
Other	15	043,063,066-077 164-173,178,179 474-4991	17,18,25,91, 99

United States  
Department of Education  
Washington, D.C. 20208-5652

Official Business  
Penalty for Private Use, \$300

Postage and Fees Paid  
U.S. Department of Education  
Permit No. G-17

**FOURTH CLASS BOOK RATE**



**BEST COPY AVAILABLE**